UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK

SHANE LAVIN, Individually and On Behalf of All Others Similarly Situated, Plaintiff, v. VIRGIN GALACTIC HOLDINGS, INC., MICHAEL A. COLGLAZIER, GEORGE WHITESIDES, DOUG AHRENS, and JON CAMPAGNA, Defendants.	CASE No.: 1:21-cv-03070-ARR-TAM

[CORRECTED] AMENDED CLASS ACTION COMPLAINT FOR VIOLATION OF THE FEDERAL SECURITIES LAWS

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Lead Plaintiffs Mark Kusnier and Robert Scheele, and Named Plaintiffs Xinqiang Cui, Justin Carough, Jennifer Ortiz, and Richard O'Keefe-Jones, for their Complaint against Defendants Virgin Galactic, Inc., Richard Branson, Chamath Palihapitiya, Michael Moses, George Whitesides, and Michael Colglazier, allege the following based on personal knowledge as to themselves and their own acts and information and belief as to all other matters.

I. INTRODUCTION[1]

1. This is a securities class action brought on behalf of all persons or entities who purchased Virgin Galactic or Social Capital common stock from July 10, 2019 through October 14, 2021, both dates inclusive ("Class Period") and who held shares past at least one of the corrective disclosures alleged below ("Class"), bringing claims under Sections 10(b), 20(a), and 20A of the Securities Exchange Act of 1934 ("Exchange Act"). Excluded from the Class are (i) Defendants, (ii) officers and directors of Virgin Galactic and Social Capital Hedosophia Holdings Corp. ("Social Capital") at all relevant times, and all subsidiaries thereof; (iii) persons or entities who held shares of Vieco 10 Ltd. ("V10") as of July 9, 2019, and all subsidiaries thereof; (iv) the family members, heirs, assigns, and legal representatives of all persons set out in (i)-(iv); and (v) all entities controlled by the persons set out in (i)-(iv).

2. When Virgin Galactic went public at the beginning of the Class Period, Defendants claimed it was on the cusp of sending tourists to space, having completed nearly all testing of its spacecraft. Defendants Richard Branson and Chamath Palihapitiya took advantage of the public market for Virgin Galactic's shares to sell more than $890 million and $320 million in shares, respectively. In truth, Virgin Galactic's vehicles were prototypes that had never been intended for

[1] Unless otherwise noted, all emphases are added. All quotations from UK, Australian, and Canadian sources have been edited to American spelling.

regular flights, its chaotic operations meant every flight was a potential catastrophe, and on its last pre-Class Period flight – which Defendants called successful during the Class Period – a part had disintegrated midflight, nearly causing the vehicle to disintegrate itself, and grounding the vehicle for more than a year while a replacement was built. When the truth emerged through unexplained flight program delay after unexplained delay, as well as several corrective disclosures, investors suffered massive losses.

3. The Class Period begins when Virgin Galactic announced that it would go public in a reverse merger with a special public acquisition company, or SPAC, a kind of entity formed specifically to enter into a reverse merger.

4. When the Class Period began, Virgin Galactic's odyssey to become the world's first private spaceliner seemed nearly over. Defendants told investors that they had successfully completed nearly all testing to make sure their shuttle, called Unity, was as safe as an airliner, leaving only the interior cabin to test.

5. To reach space, a Virgin Galactic carrier aircraft, called Eve, takes Unity to approximately 45,000 feet and releases it. Unity then uses its own rocket to get to space.

6. Unity had flown to space twice, with the latter flight taking place on February 2019. Both flights, Defendants said, were unqualified successes. Defendants said in July 2019 that Branson would go to space in late 2019 or early 2020; commercial flights, they added, would follow soon after.

7. Defendants claimed Unity was safe – not 95% safe, not 99% safe, but 100% safe. It needed to be. As Defendant Branson said, "a private [space] program can't afford to lose ***anybody***."

8. Defendants capitalized on these claims. Defendant Chamath Palihapitiya, who founded the SPAC, and Branson, who founded Virgin Galactic, both sold every share they could. Palihapitiya made more than $320 million; Branson, an eye-popping $890 million dollars.

9. Virgin Galactic was so far from being safe that every flight was a disaster in the making.

10. First, Unity and Eve were not commercial-grade vehicles. Virgin Galactic had hired a maverick aerospace firm, Scaled Composites, to build prototypes. The prototypes were barely tested, built to withstand only a few flights, and meant for Virgin Galactic to use as starting points to design and build its own commercial-grade vehicles. Instead, Virgin Galactic took these prototypes – Unity and Eve – and told the world they could safely take paying customers to space. Under FAA regulations, the vehicles were not even airworthy.

11. As mere prototypes, Unity and Eve were so rickety that every flight could be their last. Cracks appeared on Eve's wings after every flight, and some were not fixed – so much so that a Virgin Galactic employee said the wings looked like spiderwebs or cracked eggshells. Virgin Galactic's mechanical flight control system buckled ***in flight***.

12. Second, Defendants had no idea what the vehicle's configuration even looked like. Scaled Composites had never handed over detailed engineering drawings, because it had never been asked to produce them. As befits a prototype shop, the drawings Scaled Composites handed over were slapdash. Some engineering drawings were missing entirely. Some were inaccurate; for example, it took Virgin Galactic more than half a decade to discover that the drawings of Eve's wings were completely wrong. Some were in crayon or on napkins. Some of the napkins were stained with beer.

13. Third, Virgin Galactic made its problems much worse by failing to track the changes it made to the vehicles. Perversely, Virgin Galactic's software routinely deleted all information about what parts had been installed, or even if the parts had been installed, halfway through completing engineering orders. Technicians inserted parts with limited lifespans without documenting when they had done so or the part's remaining useful life, so that when Virgin Galactic replaced parts, they were already "really worn down" and should have been replaced "months ago". Different internal databases would report different expiration dates and different serial numbers for the same parts that had actually been installed on Unity or Eve.

14. Never having had accurate engineering drawings of its vehicles, and having progressively added undocumented changes, in many cases, Virgin Galactic did not know what parts were in its vehicles, their dimensions or properties, their age, or their life expectancy. Virgin Galactic's operations were a never-ending mess. Engineers entered nonsense orders, such as asking technicians to insert brackets in places that didn't exist. Technicians made undocumented repairs or replacements, or documented that they had completed tasks they had never even begun. Moderately difficult tasks like installing wiring turned into months-long quagmires as engineers realized their drawings of Unity were all wrong. Inspectors signed off on inspections that had never been completed. Inspectors caught falsifying inspection reports were not fired.

15. When Virgin Galactic started powered test flights in April 2018, it experienced one near catastrophe after another. The pilot had to abort the first flight because Unity shook violently and its instruments failed utterly. Virgin Galactic allowed the second flight to proceed even though a manufacturer had warned that a critical part was defective. On the third, a pilot accidentally triggered a pressurized nozzle used for controlling the shuttle that sent Unity spinning out of

control. On the fourth, Unity flipped over and nearly went off course; because Unity has no fuel to power itself to the landing strip, "veering off course" means a likely-fatal crash landing.

16. On the fifth, the February 2019 flight, the technicians missed not only that they had covered airholes that needed to be open to allow air to escape from a critical part, horizontal stabilizers, and not only that there was a baggie of loose screws taped inside the horizontal stabilizers, but that the reason the loose screws were there was that technicians were in the middle of installing panels on the horizontal stabilizers when Unity flew.

17. It was the covered airholes that nearly killed everyone.

18. With nowhere to go, the air popped the horizontal stabilizers just like a bag of potato chips. By sheer luck, the horizontal stabilizers popped in the right place. Had they popped in any of the many wrong places, the horizontal stabilizers would have disintegrated. Unity would have followed soon after. The three souls on board would not have returned to Earth alive. Virgin Galactic's Vice President of Safety called their safe return a "miracle" and resigned when Virgin Galactic, in his words, "brush[ed] [the near catastrophe] under the rug."

19. Defendants disclosed none of this during the Class Period – not that its vehicles were mere prototypes years past their expiration date, not that Virgin Galactic didn't know its vehicles' configuration because it never got engineering drawings and didn't record the modifications it made, and certainly not that four of its five flights had nearly ended in disaster. Defendants even pronounced the February 2019 flight a success, both at the time, and throughout the Class Period.

20. As the Class Period began, Virgin Galactic had grounded Unity, in part because it needed to repair the horizontal stabilizers, and in part because it needed to address some of the more glaring problems that had turned other flights into near disasters. During the Class Period,

inexplicable delay followed inexplicable delay. After close of trading on August 3, 2020, Virgin Galactic delayed Defendant Branson's flight to space, meant to mark the start of commercial flights, causing its stock price to fall 13.7% the next day. Virgin Galactic gave no explanation; in truth, it resulted from the many repairs and improvements Virgin Galactic had had to implement to fix the damage from the February 2019 flight and at least reduce the risk that its passengers would not make it back alive. On December 12, 2020, a planned flight was automatically aborted just before Unity activated its rocket. Virgin Galactic gave no explanation at the time, but it resulted from a malfunctioning digital control system for horizontal stabilizers that had been installed to address violent shaking that had forced Virgin Galactic to abort a 2018 flight. Its failure was not unexpected to Defendants. The digital control system had created problem after problem when it was installed, though Virgin Galactic never disclosed them. Virgin Galactic's stock price fell 17.4% the next trading day after the aborted flight.

21. On February 1, 2021, the Washington Post published an advance review of Nicholas Schmidle's book, *Test Gods: Virgin Galactic and the Making of a Modern Astronaut*. Schmidle had embedded himself with Virgin Galactic for four years. He developed relationships with insiders who continued to talk to him even after he left. The advance review revealed that the February 2019 flight had almost ended in a disaster. Virgin Galactic's stock price fell 9.6% in response.

22. After the Washington Post article, the inexplicable delays continued. On February 25, 2021, Defendants announced yet another delay. While Defendants blamed the digital control system that had caused the December 2020 malfunction, Unity couldn't have flown have flown even if it had fixed the digital control system because Virgin Galactic was also addressing massive defects identified in a January/February 2021 inspection. Virgin Galactic's stock price fell by

another 11.8%. Then, on October 14, 2021, Virgin Galactic cancelled a flight and grounded Unity and Eve for more than a year. The culprit? Eve's wings and various other parts were riven with cracks, a problem well known to Defendants since at least 2018. Virgin Galactic's stock price fell 16.9%.

23. For Palihapitiya and Branson, selling Virgin Galactic stock was a financial lifeline they desperately needed. For the investors they and the other Defendants defrauded, Virgin Galactic was something quite different.

II. JURISDICTION AND VENUE

24. The claims asserted herein arise under, and pursuant to, Sections 10(b), 20(a) abd 20A of the Exchange Act, 15 U.S.C. §§78j(b), 78t(a), and 78t-1, and SEC Rule 10b-5 promulgated thereunder, 17 C.F.R. §240.10b-5.

25. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §1331 and §27 of the Exchange Act.

26. Venue is proper in this District pursuant to §27 of the Exchange Act and 28 U.S.C. §1391(b). Many of the acts charged herein, including the preparation and dissemination of materially false and misleading information, occurred, in substantial part, in this District.

27. In connection with the acts alleged in this Complaint, Defendants, directly or indirectly, used the means and instrumentalities of interstate commerce, including, but not limited to, the mails, interstate telephone communications, and the facilities of an electronic securities exchange located in this District.

III. PARTIES AND IMPORTANT NON-PARTIES

A. Parties

28. Lead Plaintiffs Mark Kusnier and Robert Scheele purchased Virgin Galactic securities during the Class Period and were damaged thereby. Their PSLRA certifications were previously filed and are incorporated by reference.

29. Named Plaintiffs Xinqiang Cui, Justin Carlough, Jennifer Ortiz, and Richard O-Keefe-Jones purchased Virgin Galactic common stock during the Class Period and were damaged thereby. Their PSLRA certifications are attached as Exhibits to this Complaint and are incorporated by reference.[2]

30. Founded in 2004, Defendant Virgin Galactic is an aerospace company developing a system to take customers to space. Virgin Galactic's shares trade on the NYSE under ticker SPCE. A Congressional act prevents the Federal Aviation Administration ("FAA") from considering the safety or survival of passengers or pilots of space vehicles when enacting any regulations. The FAA may only regulate space vehicles based on the risks posed to those outside the vehicle. Thus, the FAA imposes minimal regulations on Virgin Galactic.

31. Defendant Richard Branson was throughout the Class period the controlling shareholder of Virgin Galactic. Branson has founded a series of companies in his career, most of which ended poorly. Branson is notorious for his outsized promises and attention-grabbing antics. During the Class Period, Branson's net worth was approximately $5 billion. Excluding Virgin Galactic, a substantial majority of his investments were in illiquid private companies.

32. Defendant Chamath Palihapitiya served as the Chairman of the Board of Social Capital Hedosophia Holdings Corp. ("Social Capital") since its IPO. He continued to serve as

[2] Plaintiff Cui will file his PSLRA certification shortly.

Chairman of the Board of Virgin Galactic after it merged with Social Capital. From 2007 to 2011, Palihapitiya worked at Facebook, becoming a senior executive. After leaving Facebook, he started The Social+Capital Partnership, a venture capital firm, which he later renamed Social Capital ("Social Capital Fund"). As Social Capital Fund collapsed in 2017, Palihapitiya began creating a series of SPACs, starting with Social Capital, listed under the ticker symbol IPOA. This entity eventually merged with Virgin Galactic. Palihapitiya reserved the ticker symbols IPOA through IPOZ.

33. Defendant George Whitesides was Virgin Galactic's CEO from May 2010 through July 20, 2020. When Whitesides joined Virgin Galactic, it had 30 employees. Whitesides served as NASA's Chief of Staff and describes himself as a "space geek".

34. Defendant Michael Moses has served as Virgin Galactic's President - Missions and Safety since June 2016. In this position, Moses oversaw program development and spaceflight operations, including vehicle processing, flight planning, customer training and flight crew operations. Moses served as Virgin Galactic's Vice-President of Operations from October 2011 through June 2016.

35. Defendant Michael Colglazier has served as Chief Executive Officer and as a member of Virgin Galactic's Board of Directors since July 2020. He has also served as President since February 2021.

36. Defendants Branson, Palihapitiya, Whitesides, Moses, and Colglazier are the "Individual Defendants."

B. Important Non-Parties

37. The Spaceship Company was a wholly-owned subsidiary and sister company of Virgin Galactic. The Spaceship Company was responsible for manufacturing the vehicles Virgin Galactic would fly. In December 2020, The Spaceship Company and Virgin Galactic merged.

38. Former Employee 1 ("FE 1") worked as Chief Inspector/Quality and Regulatory Compliance of Virgin Galactic's Technical Operations Group from June 2019 through December 2020. Until February 2020, FE 1 reported to Director of Regulatory Compliance Greg Fredenburg, who reported to Moses. Thereafter, FE 1 reported to Pedro Caballer, Virgin Galactic's Director of Technical Operations, who reported to Moses. FE 1 oversaw Virgin Galactic's Quality Assurance department, which included attempting to ensure that technicians documented Unity and Eve's maintenance. FE 1 created and oversaw a team of three technicians who conducted visual inspections of the vehicles. FE 1 also created and oversaw a non-destructive testing team of six technicians, who tested vehicles to determine their capabilities, structures, and status, without destroying them. Finally, FE 1 oversaw Virgin Galactic's regulatory compliance department. FE 1 left Virgin Galactic because "I wasn't comfortable signing off" on paperwork asserting Unity was safe to fly in light of Virgin Galactic's dangerous practices.

39. Former Employee 2 ("FE 2") worked as an Associate Systems Safety Engineer at Virgin Galactic from August 2017 through January 2019. FE 2's main job duties related to performing FAA System Safety Analysis, including for Eve, but primarily for Unity. FE 2 would conduct fault tree analyses after incidents or accidents. FE 2 reported to Issa Mukhar, who reported to Thom Howell and Pete Nickolenko, who both reported to Moses. FE 2 left Virgin Galactic in January 2019. Later that month, the remaining four members of the Safety and Engineering team were all laid off, including Mukhar.

40. Former Employee 3 ("FE 3") worked as a Virgin Galactic technician from August 2014 through October 2018. FE 3's formal title was "Space Wrench", which is what Virgin Galactic calls its technicians. FE 3 reported to Crew Chief Matt Coss until mid-2015 when Coss was replaced by Chad Rosacker. Rosacker and Coss reported to Rich Mondoux, Virgin Galactic's Director of Maintenance, who reported to Caballer, who reported to Moses.

41. Former Employee 4 ("FE 4") worked as a Virgin Galactic Space Wrench from September 2017 through January 2018. He reported to Chad Rosacker, a Crew Chief, who reported to Mondoux, who reported to Moses. FE 4 performed whatever general maintenance on Unity and Eve was necessary to prepare them for launch, including completing engineering orders, drilling holes, and putting rivets on the vehicles.

42. Former Employee 5 ("FE 5") worked at The Spaceship Company from 2011 through October/November 2019. Until about November 2018, FE 5 worked as Quality Supervisor and Quality Engineer. FE 5 worked on the "entirety" of Unity. FE 5's day-to-day responsibilities included receiving engineering orders from Engineering and breaking them down into individual tasks for technicians to perform. He also supervised the Quality Inspectors, who were supposed to oversee the technicians' adherence to the engineering instructions. FE 5 reported to Director of Quality Assurance Cecil Whaley, who reported to Enrico Palermo, The Spaceship Company's President, who reported to Whitesides. For the last year of his employment, FE 5 served as The Spaceship Company's Build Manager for Interiors, responsible for achieving schedules and deadlines.

43. Former Employee 6 ("FE 6") served as The Spaceship Company's Production Manager from July 2015 through July 2017 and its Deputy Program Manager – Build from July 2017 through March 2020. Before joining The Spaceship Company, FE 6 worked for 26 years at

Scaled Composites, for the last 23 years as crew chief. While at The Spaceship Company, FE 6 had overall responsibility for building and maintaining Unity. While at Scaled Composites, FE 6 was the Crew Chief for Enterprise, Unity's progenitor, and was responsible for its safety. FE 6 was also a crew chief involved in building SpaceShipOne, Scaled Composites' first rocket-propelled vehicle. When he left, FE 6 reported to Tony Montoya, the Director of Manufacturing, who reported to Tom Pugh, Senior Vice President – Programs & Engineering, at The Spaceship Company.

44. Former Employee 7 ("FE 7") worked at Virgin Galactic from March 2015 through January 2019. Until the end of 2017, he was a Manufacturing Engineer responsible for assessing the feasibility of manufacturing parts intended for use in Virgin Galactic vehicles. He initially reported to Darren Laughrin. Then, after Laughrin's promotion to Vice President of Operations, FE 7 reported to Brian Bell, who reported to Laughrin. After his promotion, Laughrin reported to the President of The Spaceship Company, Enrico Palermo. From January 2018 on, FE 7 provided Engineering Support for Structural Systems, which entailed reviewing the designs of mechanical systems on the Virgin Galactic vehicles, primarily Unity, and assessing whether Virgin Galactic could source any of the hardware it had been using to reduce the amount of custom-made hardware. FE 7 reported to Joe Brennan and Tony Montoya, who operated in parallel and reported to Laughrin.

45. Former Employee 8 ("FE 8") started work as a Virgin Galactic contractor in August 2019 but was quickly hired as an employee. He was the lead Materials & Processes Group Engineer, first at The Spaceship Company from August 2019 through January 2021, then at Virgin Galactic from January 2021 through August 2021. FE 8's responsibilities included designing and overseeing an inspection process for Eve and Unity.

46. Nicholas Schmidle is a *New Yorker* Staff Writer. He was embedded in Virgin Galactic from late 2014 through about July 2018. During this time, Schmidle had nearly unlimited access to Virgin Galactic. He made 16 trips to Virgin Galactic's Mojave Desert offices. While there, he was free to sit in on nearly any meeting or talk to any employees. He was also provided with documents. Schmidle formed close relationships with Virgin Galactic employees that continued after Virgin Galactic revoked his access. Schmidle maintained a close relationship with Mark Stucky, Virgin Galactic's lead pilot, among others. Schmidle wrote a book based on his experience embedded in Virgin Galactic titled *Test Gods: Virgin Galactic and the Making of a Modern Astronaut*, published May 4, 2021. As Schmidle sets out in the author's note, "when I finished writing *Test Gods*, I then provided an annotated manuscript, with citations for every factual assertion in the text, to a professional fact-checker who spent months re-reporting the book – re-interviewing sources, consulting documents, re-reading archival material – to ensure its accuracy."

47. Mark Stucky was Virgin Galactic's lead test pilot from February 2015 through July 2021. Before joining Virgin Galactic, he was a test pilot for Scaled Composites flying Eve and Unity's progenitor. Stucky had a storied career in the United States Air Force. Stucky was the first Virgin Galactic pilot to fly to space and is regarded as one of the best test pilots in the world. Virgin Galactic fired Stucky in a Zoom meeting in July 2021 after he raised concerns about Virgin Galactic's safety to Schmidle. Stucky is a principal source, and the subject, of *Test Gods*.

48. Todd Ericson served as Virgin Galactic's Vice President – Safety and Testing, as well as one of its test pilots, from December 2014 through June 2019. Ericson resigned in protest because Virgin Galactic was not taking safety seriously.

49. Greg V. Meholic is a Senior Project Leader at The Aerospace Corporation. Mr. Meholic has 29 years' experience encompassing both aircraft and space system development. He has 6 years of experience with aircraft propulsion design, servicing and manufacturing, and 20 years' experience with space launch concept development and design, vehicle and ground support systems and hardware, integrated space systems engineering, test and qualification processes, anomaly detection and resolution, manufacturing, and missions operations. Mr. Meholic has provided real-time support to more than four dozen space launches. He also has 27 years of college-level teaching experience in aircraft design, aerospace engineering, propulsion system design and product familiarization. Mr. Meholic has experience with many aspects of space vehicle construction, from the drawing board through the shop floor, flight qualification, and launch.

IV. VIRGIN GALACTIC GOES PUBLIC THROUGH A REGULATORY LOOPHOLE THAT HAS DRAWN SEC CONCERNS

A. Palihapitiya Creates A SPAC To Take A Private Company Public

50. Virgin went public through a special purpose acquisition company (a SPAC).

51. A SPAC is a publicly traded company formed to acquire another company.

52. The cash raised in the SPAC's initial public offering ("IPO") goes into a trust account.

53. If the SPAC's sponsors find a suitable partner, the SPAC and the target enter into an agreement whereby the private company goes public using the shell. The SPAC formally acquires the private company, but issues SPAC shares to the private company's shareholders such that they hold the majority, and usually the substantial majority, of the SPAC's shares. Thus, the SPAC is a form of reverse merger. It gives private companies the benefits of an IPO – publicly

traded shares and a lot of money – without undertaking an IPO's regulatory and disclosure requirements.

54. After the reverse merger, called a de-SPAC transaction: (a) the SPAC is formally the surviving entity, but takes on the private company's name and operations; (b) most of the SPAC's shares are held by the private company's former shareholders; (c) the SPAC's pre-merger shareholders now hold a minority of shares in SPAC; and (d) the private company receives the cash in the SPAC's trust account.

55. The SPAC's structure pressures its sponsors to consummate a transaction. Sponsors typically receive shares in the SPAC at the same price as the public. They do not receive compensation while they are seeking a deal. They are very well compensated if the de-SPAC transaction is consummated, typically receiving new SPAC shares amounting to 25% of the SPAC's pre-merger shares for free.

56. If a SPAC does not complete a de-SPAC transaction before its deadline (typically within two years after its IPO), the trust is liquidated, and the proceeds are returned to investors.

57. If the SPAC does not consummate a de-SPAC transaction, the sponsors do not receive compensation for their efforts and only share *pari passu* with the SPAC's other shareholders from the distribution.

58. If the sponsors propose a de-SPAC transaction before the deadline, SPAC investors are given some information about the proposed transaction and the company proposed to be acquired. They vote whether to approve the deal. They may also tender their shares to redeem their investment. Typically, the de-SPAC transaction fails if either (a) SPAC shareholders vote it down, or (b) enough SPAC shareholders tender their shares that the private company can exercise a right to cancel the transaction.

59. SPACs have been around for decades, but their popularity increased markedly over the past few years. According to the SEC, in the first three months of 2021, 389 SPACS held an IPO, collectively raising $125 billion. Surging SPAC volume and increasing reports of fraud and conflicts of interests related to SPACs—such as the Department of Justice's inquiries into Clover Health, which merged with Defendant Palihapitiya's Social Capital Hedosophia Holdings Corp. III— prompted the SEC's *Investor as Purchaser and Investor as Owner Subcommittees of the SEC Investor Advisory Committee* to issue draft recommendations to the SEC regarding SPACs ("SEC Draft Report").[3]

60. The SEC Draft Report expressed myriad concerns such as "SPACs by their very nature are rife with conflicts of interest which must be disclosed to potential investors" and "[e]ven where those conflicts are disclosed, their import may not be clear to an unsophisticated investor." This is because "the purpose of the SPAC is to invest in a yet-to-be-determined company, [so] the investors must place a great deal of trust in the SPAC sponsor to find the best candidate for merger."

61. The SEC Draft Report also noted how SPACs may disadvantage retail investors: "We think the SEC should explore the data to determine whether this puts retail investors at a disadvantage and whether the SEC should make any recommendations to Congress regarding necessary statutory changes."

62. In sum, the report concluded that it "was clear from the discussion that, while the sponsors and redeeming shareholders (often more sophisticated than the remaining shareholders)

[3] Available at https://www.sec.gov/spotlight/investor-advisory-committee-2012/draft-recommendation-of-the-iap-and-iao-subcommittees-on-spacs-082621.pdf

do very well in the SPAC, the risks and costs of the SPAC are not well understood by the average retail investor."

63. Social Capital's IPO took place on September 18, 2017. It sold 69 million $10 units, each consisting of one share and one third of a warrant to purchase a share for $11.50, for total proceeds of $690 million.

64. The IPO started Social Capital Sponsors' two-year clock to close a transaction.

B. Virgin Galactic Goes Public Via de-SPAC

65. On July 9, 2019, with just two months to go on the SPAC's acquisition clock, Defendants announced that Social Capital and Virgin Galactic had agreed to merge through the de-SPAC transaction.

66. The de-SPAC transaction's terms included:

a. Virgin Galactic's existing shareholders would be issued 130 million shares at $10 each, giving existing Virgin Galactic a valuation of $1.3 billion;

b. Social Capital's existing shareholders, including its sponsor and affiliated entities to the extent of their respective existing Social Capital shareholdings, would hold about 65 million shares;

c. Social Capital's sponsors would be issued 15.75 million new shares for free;

d. Boeing would purchase about 1.9 million shares;

e. Defendant Palihapitiya would purchase 10 million shares for $100 million directly from an investment vehicle 80.7% owned by Defendant Branson's vehicle, Vieco 10 Ltd. ("V10");

f. Social Capital shareholders could tender their shares for about $10 each up to the time of the de-SPAC transaction;

g. Defendant Branson could force Virgin Galactic to repurchase V10's shares provided the following two conditions were met: (a) Virgin Galactic purchased less than $200 million of V10's Virgin Galactic's shares; and (b) Virgin Galactic still held $500 million in its trust account after purchasing V10's Virgin Galactic shares.

h. V10 agreed to a lockup preventing it from selling more than 50% of its Virgin Galactic shares for two years after the de-SPAC transaction, or until October 2021.

67. In the de-SPAC transaction, which closed on October 25, 2019[4] (a) Branson did elect to force Defendant Palihapitiya to purchase 10 million of V10's Virgin Galactic shares; (b) shareholders holding 15.8 million Social Capital shares tendered their shares for total consideration of about $159.8 million; (c) V10 elected to force Virgin Galactic to repurchase 5,209,562 of V10's Virgin Galactic shares, or the maximum amount allowed; and as a result, (d) $500 million remained in the Social Capital trust account, before additional expenses, the minimum amount. Thus, Branson withdrew every dollar he could from Virgin Galactic.

68. As a result, Virgin Galactic's equity capital structure immediately after the de-SPAC transaction was:

V10	114.8 million shares
Social Capital's public shareholders	53.1 million shares
Social Capital Sponsors and related parties	25.8 million shares
Boeing	1.9 million shares
Shares issued to settle transaction costs	0.4 million shares
Total	**196.0 million shares**

[4] Social Capital received an extension of the 2-year deadline from its shareholders to complete the Virgin Galactic SPAC.

69. After expenses, Virgin Galactic had $453 million in cash, or at least 24 months' running room.

V. VIRGIN GALACTIC IS A CATASTROPHE WAITING TO HAPPEN

A. Branson Founds Virgin Galactic As Part of a Marketing Stunt

70. In 1996, the Ansari X Prize was created to partially defray the cost of developing non-governmental spaceflight to encourage its development.

71. The Ansari X Prize would award $10 million to the first non-government organization to launch a reusable crewed spacecraft into space twice within two weeks.

72. In October 2004, the company Scaled Composites won the Ansari X Prize.

73. Virgin Galactic was founded in 2004 as a joint venture between Virgin and Scaled Composites.

74. Richard Branson learned of Scaled Composites' spaceship while it was under construction. Branson offered Scaled Composites $1 million in exchange for a Virgin decal on the shuttle and the rights to develop a commercial shuttle based on its design.

75. Branson was frank about what he hoped to accomplish with Virgin Galactic. In 2004, he explained that "my gut feeling was that we would get millions and millions of dollars of [free] publicity [for Virgin brands] by being the first people to take tourists into space."

76. Branson recognized that commercialization could not happen without Scaled Composites and its founder, Burt Rutan.

77. Burt Rutan founded Scaled Composites in 1982 to design experimental prototypes for aircraft and spacecraft. Rutan is an accomplished airplane engineer and led Scaled Composites to design innovative vehicles. His work includes the Voyager, the first plane to fly around the

world without stopping or refueling. Scaled Composites was known for its unconventional designs, and for using non-metallic composite materials.

78. While Scaled Composites is a legendary designer of prototype airplanes, it does not aim to produce airplanes fit for commercial use. Rutan does not enjoy and has little experience commercializing vehicles. According to Schmidle, he views such manufacturing as "assembly-line work, for lesser minds." According to FE 8, rather than employing proper wind tunnels, Scaled Composites has been known to gather data by throwing scale models off the air traffic control tower at Mojave Airport, where it is based. Scaled Composites is known, too, for testing structural parts by setting them on coolers and then jumping on top of them. Scaled Composites' methods are innovative and perhaps tolerable for prototypes flown by virtuoso test pilots who understand and accept the risks they undertake. But they are not at all suitable for commercial vehicles that are intended to safely take paying customers to and from space on regular flights. As FE 8 puts it, spacecraft need more than "math and models", which is how Scaled Composites built its aircraft.

79. Rutan applied these same methods in drawing up Unity and Eve's original designs. According to Schmidle, he scavenged parts from junkyards and tested the shuttle's key innovation – the so-called feather that allowed Unity to re-enter the atmosphere without crash landing– by throwing it off the Mojave Airport air-control tower.

80. Rutan's original design scared even elite test pilots, professionals who risk death every time they take off. To win the Ansari X Prize, Rutan's shuttle had to fly to space two times in two weeks. The pilot for the first flight, Mike Melvill, nearly died on that flight. A NASA astronaut watching the flight said "[t]hat's a dead guy." Melvill refused to fly again; Rutan had to hire a new pilot.

81. Despite his misgivings, Rutan reluctantly agreed to partner with Branson to develop a prototype that Branson could use for a commercial vehicle. Branson's Virgin Galactic held 70% of the venture's stock, to Scaled Composites' 30%.

82. Virgin Galactic's design, an adaptation of the one Rutan used to win the Ansari X Prize, is a two-part system consisting of a carrier aircraft, or mothership, and a space shuttle. The mothership takes the space shuttle to about 45,000 feet, and then releases it. The shuttle then activates its own rocket engine. Flying under its own power nearly vertically, the shuttle reaches approximately 275,000 feet, which is, under U.S. law, in space (but barely).

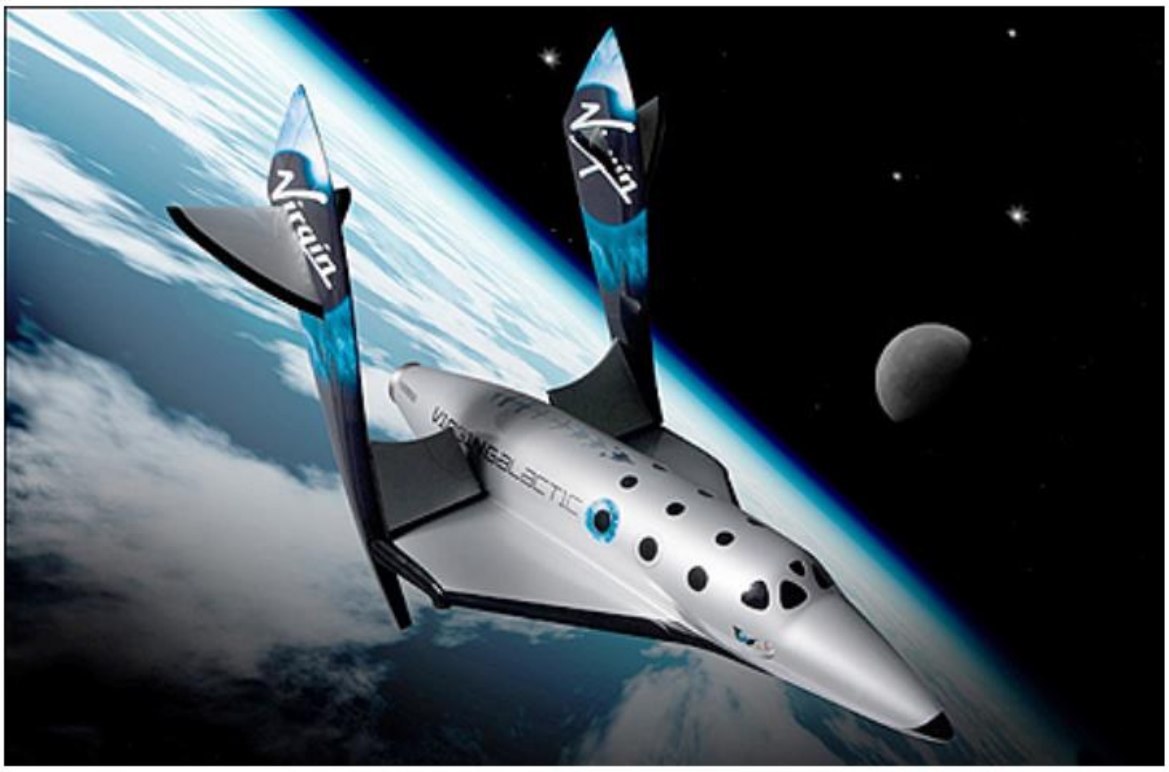
83. The shuttle stays in space for a few minutes, and then starts gliding back down to Earth.

84. The shuttle used a design called feathering to slow it down on re-entry. First described in a 1958 technical paper, the theory of feathering is relatively well established. But there is little practical experience. Most spacecraft take astronauts to orbit, where re-entry speeds are far too high for a feathering system. But Virgin Galactic only sends its customers into much lower and slower suborbital flights. Thus, while NASA's shuttles re-entered the atmosphere at nearly Mach 25, Unity only reaches Mach 3 and can, consequently, use feathering. [5]

85. Feathering slows down the shuttle by deploying the shuttle's wings in the initial phase of re-entry where the atmosphere is thin. When the pilot activates the feather, the back half of the shuttle's wings unfold and the tail booms containing the horizontal stabilizers extend out so they are above the vehicle. With the feather extended, the aerodynamic drag helps slow and stabilize the vehicle as it descends to denser air while also allowing for steering. The horizontal

[5] Mach 1 is the speed of sound, or about 767 miles per hour. Mach 2 is twice the speed of sound, Mach 1.5 is one and a half the speed of sound, and so on.

stabilizers are a key component of the feathering system and are essential to the safe, controlled return of the vehicle



Virgin Galactic's craft (simulation). Photo: Virgin Galactic

86. As the shuttle falls closer to Earth, the atmosphere thickens, putting more pressure on the shuttle (including the wings). When the atmosphere thickens, the pilot retracts the feather. The pilot then glides the shuttle down to a landing strip.

B. Virgin Galactic's Attempt to Develop a Working Shuttle Causes Four Casualties

87. Scaled Composites designed and built a shuttle, Enterprise, based on a new model, SpaceShipTwo.

88. Rutan is an expert in designing aircraft, not rockets; SpaceShipOne was Rutan's first rocket-propelled vehicle.

89. Scaled Composites developed a so-called hybrid engine for Enterprise whose fuel was a combination of nitrous oxide and solid rubber, which is cheaper than other spacecraft fuels.

90. The rocket Scaled Composites designed and tested was the largest hybrid rocket that had ever been developed.

91. To lower the vehicle's weight, thus increasing its potential payload, Scaled Composites used carbon composites for its rocket propellant tank, rather than sturdier metal.

92. In July 2007, Scaled Composites tested the rocket on the ground. It exploded, killing three Scaled Composites employees. The engine was not even installed on a vehicle.

93. Scaled Composites later determined that the petroleum glue composite liner inside the tank that feeds the engine had dissolved, contaminating the contents, causing friction when it passed through the valve, and triggering the gas to explode. The tank landed 800 feet from the explosion site, the valve 300 feet in the opposite direction.

94. Rutan later acknowledged "I didn't know that nitrous oxide was that dangerous."

95. Scaled Composites and Rutan narrowly avoided charges by persuading an OSHA investigator that the negligence they admitted to had not been criminal. OSHA's report did not become public. In turn, the local sheriff did not prosecute.

96. Nevertheless, Virgin Galactic pressed ahead.

97. In addition to land-based tests, Scaled Composites and Virgin Galactic ran a series of flight tests on the shuttle. In the first, and least risky, type of test, a captive carry flight, the mothership takes the shuttle up to 45,000 feet but does not release it.

98. In the second, glide tests, the mothership releases the shuttle, but it does not engage its own rocket motor. Instead, after release, the pilot immediately glides the shuttle down to a landing strip. Glide tests are more risky than captive carry tests.

99. In the third, powered tests, the mothership releases the shuttle, which engages its rocket motor for the full 60-second planned blast and enters space. Powered tests are the riskiest. Undiscovered flaws or pilot error can destroy the shuttle, while the shuttle's speed and height make a successful parachute escape unlikely.

100. Before October 2014, Virgin Galactic had run thirty glide flights and three limited powered tests in which the pilot engaged Enterprise's rocket motor but for fewer than 60 seconds.

101. October 2014 was Enterprise's first full powered flight – its first attempt to reach the edge of space.

102. Virgin Galactic pilots and co-pilots were required to perform several actions precisely, in quick succession, and under high G-force when operating the shuttle. Among them is properly controlling the feather.

103. The feather has three settings: locked, unlocked, and deployed.

104. If the feather is in the locked setting, it will not deploy.

105. Unlocking the feather does not deploy it. However, if the feather is unlocked when the shuttle approaches or is in the transonic zone (0.8-1.2 Mach), aerodynamic forces will cause the feather to deploy on its own.

106. If the feather is deployed while the shuttle is in a thick atmosphere and its rocket is powered, the shuttle will disintegrate because of aerodynamic forces.

107. Virgin Galactic pilots' flight simulator did not create realistic conditions. Pilots rode the simulator in street clothes, so, for example, the pilot did not realize before the October 2014 flight that a portion of his mask would obstruct his view of some of his controls. The simulator did not shake or otherwise simulate the actual forces, including g-forces, the pilot would experience on a flight.

108. But despite never having exposed the pilots to realistic flight conditions, Virgin Galactic did not design any failsafe preventing the pilots from unlocking the feather when the shuttle reached the transonic zone. Which is what the co-pilot did.

109. Enterprise disintegrated mid-flight. Though the pilot miraculously survived, the co-pilot did not.

110. A National Transportation Safety Board ("NTSB") investigation later concluded that "the probable cause of this accident was Scaled Composites' failure to consider and protect against the possibility that a single human error could result in a catastrophic hazard to the SpaceShipTwo vehicle."

111. The transcripts of the October 2014 flight record that a mere five seconds after firing the rocket, and while conducting a series of maneuvers, the copilot moved his hands towards the feather lock handles. Even as the copilot performed further maneuvers using his left thumb, he mistakenly used his left hand to unlock the feather. Four seconds later, the shuttle disintegrated.

112. The surviving Virgin Galactic pilot told the NTSB that the fact that the feather must be locked in the transonic zone "came up many times" and was "common knowledge."

113. Yet the transcripts of the October 2014 flight record that no warning was issued not to unlock the feather.

C. Crisis

114. Government-run space missions are not entirely safe. The historical death rate for missions is about 3% per astronaut per mission. But government-run space missions are meant to accomplish some goal beyond the astronaut's enjoyment, personal development, or increase in status. Astronauts are professionals who knowingly risk their lives to advance science and our understanding of our solar system.

115. Customers who pay several hundred thousand dollars to fly Virgin Galactic do it for themselves. In many cases, the flights are mere status symbols. Virgin Galactic takes passengers to 50 miles above the earth, not because there is anything special about the experience there, but because that is where NASA and the U.S. Air Force say space starts. Having flown to space, even as cargo rather than contributors, the customers are legally entitled to medals designating them astronauts. Virgin Galactic has partnered with Land Rover to create and sell the Range Rover Astronaut, which is just a more expensive version of an ordinary Range Rover. For the extra price, the Range Rover carries dozens of badges, patches, and the like identifying the owner as a "future astronaut."

116. Making Unity as safe as an airliner would have been a major accomplishment. As Rutan said concerning Virgin Galactic's flight program at an event attended by Branson in January 2008:

> Our goal is making spaceships at least as safe as the early commercial airliners, which were introduced in the late 1920s. [] Don't believe anybody who tells you the entry level of the new spacecraft will be as safe as the modern airliner.[6]

117. Virgin Galactic understands that a ticket cannot come with a risk of dying. As Defendant Branson acknowledged, the shuttle flight must be completely safe, adding that even 99% safety is not sufficient. In a November 6, 2012, interview Branson told Inc. Magazine that "a private program can't afford to lose ***anybody***." Defendant Moses, in considering whether his wife Beth Moses (also a Virgin Galactic executive) should be the first "passenger" aboard a Virgin Galactic flight, told Schmidle: "Personal life loss aside, an accident would impact the lives of the

[6] A 2014 book reported that after making the statement, "looking around Rutan could see that no one took his pessimism seriously." Tom Bower, *Branson: Behind the Mask*, at 57 (Faber & Faber Ltd., 2014).

eight hundred people who work here: we would go out of business. And the commercial space industry could die."

118. Analysts who began covering Virgin Galactic after its entry onto public markets reached the same conclusion:

a. In a December 9, 2019 report, a Morgan Stanley analyst wrote that "V[irgin] G[alactic] is possibly one passenger fatality away from possibly being put on hold by the regulators [] [if there is an accident] we assume that due to safety concerns the business model is effectively shutdown by regulators and / or the flying public's from a lack of interest in trips."

b. In the executive summary of a November 21, 2019 report, a Credit Suisse analyst wrote that "[a] major accident could slow or close the business, or cause demand to decline significantly. A catastrophic accident could leave the company valueless, in our view."

119. The October 2014 accident threw Virgin Galactic into crisis. Employees were anguished by the death. Many needed counseling.

120. And according to Test Gods, many customers were demanding their money back.

D. A Purported Redemption

121. Virgin Galactic recognized that the October 2014 accident was an existential threat. Accordingly, it purportedly overhauled its testing program.

122. Virgin Galactic started by severing its relationship with Scaled Composites. From then on, Virgin Galactic's shuttles would be built entirely by its sister company, The Spaceship Company.

123. Enterprise's disintegration had temporarily left Virgin Galactic without a shuttle. Yet the delay would not be very long. In 2012, before Virgin Galactic severed the relationship, Scaled Composites had begun building another SpaceShipTwo model, later dubbed VSS Unity. As of early November 2014, Unity was about 65% complete. The Spaceship Company then took over.

124. Unity was unveiled in February 2016. From Unity's unveiling, Virgin Galactic claimed to have left its cowboy days behind and embraced safety.

125. In the press release unveiling Unity, Virgin Galactic said that "we are now entering a phase where instead of just testing pieces and subsystems, we test the vehicle as a whole."

126. Virgin Galactic then described its plan to test Unity:

> If you are expecting SpaceShipTwo to blast off and head straight to space on the day we unveil her, let us disillusion you now: this will be a ground-based celebration. Indeed, our new vehicle will remain on the ground for a while after her unveiling, as we run her through full-vehicle tests of her electrical systems and all of her moving parts. We already know these things work individually, but one can't simply assume they will all work together—that must be tested and verified. ***We'll do so quickly, but we won't cut corners.***
>
> Once that is done, we'll be eager to get air under the wings of our new spaceship.
>
> * * * * *
>
> After several glide flights have been completed and we are satisfied with the results, rocket-powered test flights are next. ***We will execute a thoughtful and steady progression of flights.*** Each mission will be designed to test something important: how the heat from the rocket motor dissipates in the rear of the vehicle, how the vehicle behaves when breaking the sound barrier on both ascent and descent, how closely our models of forces on the vehicle match reality.
>
> * * * * *
>
> ***When we are confident we can safely carry our customers to space, we will start doing so.*** We feel incredibly honored that our earliest paying customers already number more than the total number of humans who have ever been to space. Our first spaceflight with paying customers; our first flight full of research experiments; our first flight with a full complement of eight (a feat that has only been

> accomplished once before in all of history, by the Space Shuttle on mission STS-61A); the dozens of times we will fly the first ever astronaut from a given nation — each of these will be exciting milestones in the history of space exploration.

127. Virgin Galactic claimed to have changed course after the October 2014 accident: "We are not starting from scratch even in that respect. Because our new vehicle is so similar to its predecessor, we benefit from incredibly useful data from 55 successful test flights ***as well as the brutal but important lessons from one tragic flight test accident.***"[7]

128. Virgin Galactic continued to boast of its purportedly deliberate and thorough testing procedures. On March 10, 2016, Virgin Galactic began what it called "Integrated Vehicle Ground Testing" (testing the assembled plane on the ground) and claimed that "[t]o the greatest extent possible, we test in flight-like environments."

129. On September 7, 2016, Virgin Galactic announced Unity's impending experimental flights, commenting that:

> Experimental flight test programs are by definition open-ended, and to a great extent each test depends on the data from the test that precedes it. There is no guarantee that everything will work perfectly the first time, and like all programs seeking to take bold steps, we will inevitably have times when things don't go as planned. ***Our team's biggest challenge is to use meticulous planning and preparation to ensure that any such setbacks are dealt with safely, and that every outcome, whether it matches our expectations or not, informs and improves future performance.***

130. On November 1, 2016, Virgin Galactic announced that it was beginning glide flights. After the first glide flight, Virgin Galactic issued a press release stressing the flight's safety and the precautions Defendants were taking:

> As expected, for this first gliding test flight, VSS Unity was flying light and slow, achieving a maximum speed of approximately Mach 0.6 while gliding home from an altitude of 50,000 feet. An initial look at the data as well as feedback from our two pilots indicate that ***today's flight went extremely well, but we'll take the time***

[7] Virgin Galactic did not mention the earlier 2007 accident.

> ***to properly and thoroughly analyze the vehicle's performance before clearing the vehicle for our next test.***

131. On May 1, 2017, Virgin Galactic announced the next test flight, boasting that "[t]his will provide a rigorous test of the feather system in the air, complementing extensive testing already completed on the ground", adding:

> ***As noted in our previous post, we'd learned enough from our past test flights to safely take the next step forward in our thorough test flight program.*** That step happened on a successful test flight conducted this morning from the Mojave Air and Space Port, during which we tested VSS Unity's 'feather' re-entry system in flight for the first time.

132. On June 1, Virgin Galactic called the next test a success, and on August 4, boasted that its next flight had successfully and safely tested yet another Unity component:

> Our major first today though was that with the exception of the rocket motor fuel grain, called the CTN (Case-Throat-Nozzle), we flew with all the spaceship's principle [sic] propulsion components on-board and live.

133. On January 11, 2018, Virgin Galactic launched one last glide flight before beginning powered flights. The pilot, Stucky, was to reach Mach 1 and test maneuvers during a dive to determine whether Unity would respond adequately in various circumstances. One of these tests, a pitch rap, called for Stucky to slam Unity's center stick to see how it responded, thus highlighting any issues related to its pitch. When he did, Unity wobbled. The wobbling continued, so Stucky tried to pull out of the dive. When he attempted to, a flashing red light in the cockpit indicated that the left horizontal stabilizer was stuck. If the error continued, Unity would flip upside down. Had Stucky not detected that the issue was with Unity's power and then made the split-second decision to try to use the backup power to forcibly move the left horizontal stabilizer, the flight would have ended in disaster.

134. On January 11, 2018, Virgin Galactic issued a press release describing the flight:

> January blues? Not a problem in Mojave today as VSS Unity ***successfully completed*** her seventh glide flight!
>
> It's been a few months since our last flight, during which we worked through a planned period of focused ground time. This involved extensive analysis, testing and small modifications to ensure vehicle readiness for the higher loads and forces of powered test flight. Today we tested that work by pushing Unity's atmospheric capabilities hard, touching top-end glide speeds as pilots Mark 'Forger' Stucky and Michael 'Sooch' Masucci completed a busy test card."
>
> * * * * *
>
> Alongside confirming the work that has taken place on the ground, the glide flight tested transonic flight performance, stability and control. After release from mothership VMS Eve, the spaceship was immediately pushed into a sharp descent, accelerating to Mach 0.9 which is around the maximum airspeed we can achieve without igniting the rocket motor!
>
> At this stage of the glide flight program, each flight is essentially a dry run for rocket-powered test flights. Where possible the team replicates those powered flight conditions by, for example, adding water ballast to simulate the weight and positioning of the rocket motor.
>
> Congratulations to Forger and Sooch, as well as VMS Eve crew, CJ Sturckow, Kelly Latimer and Richard Starke, ***for a well-executed flight***, supported of course by the Virgin Galactic and The Spaceship Company teams on the ground.

135. Unity's first powered flight took place on April 5, 2018. As more fully set out below, the flight plan called for the pilot, Stucky, to run Unity's rocket for 30 seconds. But when Unity reached Mach 1.8 at 60,000 feet, it began shaking violently. Stucky called out "abort, abort, abort!" As it was already going nearly Mach 2, Unity continued to climb, reaching nearly 85,000 feet. But then Unity's gyroscopes failed. Stucky noticed that they showed Unity was right side up when, in truth, it was upside down. Stucky remarked that his instruments were all "messed up." The error nearly took Unity off course. If it had, the flight would have ended in a crash landing.

136. Virgin Galactic boasted:

> We are delighted to report on a major step forward for Virgin Galactic today, as SpaceShipTwo VSS Unity safely and successfully completed her first supersonic, rocket-powered flight. ***After two years of extensive ground and atmospheric***

testing, the passing of this milestone marks the start of the final portion of Unity's flight test program.

The flight was also significant for Virgin Galactic's Mojave based, sister manufacturing organization, The Spaceship Company. Unity is the first vehicle to be built from scratch for Virgin Galactic by The Spaceship Company's talented team of aerospace engineers and technicians. ***They were justifiably proud today to be a part of this compelling demonstration of their capabilities in action.***

VSS Unity benefits from all the data and lessons gathered from the test program of her predecessor vehicle, VSS Enterprise. ***Today's flight saw an envelope expansion for the program as a whole in terms of rocket burn duration, speed and altitude achieved.***

VSS Unity took off this morning into clear Mojave skies at 8:02am with Mark "Forger" Stucky and Dave Mackay in the cockpit, attached to the WhiteKnightTwo carrier aircraft, VMS Eve, piloted today by Mike Masucci and Nicola Pecile.

The mated vehicles climbed to a launch altitude of around 46,500ft over the Sierra Nevada Mountains and while pointing back at Mojave, Eve executed a clean release of Unity. ***After a few seconds, Unity's rocket motor was brought to life and the pilots aimed the spaceship upwards into an 80 degree climb, accelerating to Mach 1.87 during the 30 seconds of rocket burn.*** The hybrid (nitrous oxide / HTPB compound) rocket motor, which was designed, built and tested by The Spaceship Company, powered Unity today through the transonic range and into supersonic flight for the first time.

On rocket shutdown, Unity continued an upwards coast to an apogee of 84,271ft before readying for the downhill return. At this stage, the pilots raised the vehicle's tail booms to a 60 degree angle to the fuselage, into the 'feathered' configuration. This unique design feature, ***which is key to a reliable and repeatable re-entry capability for a winged vehicle***, incorporates the additional safety mechanisms adopted after the 2014 VSS Enterprise test flight accident.

At around 50,000ft, the tail-booms were lowered again and, while jettisoning the remaining oxidizer, Unity turned towards Mojave for the glide home and a smooth runway landing.

The flight has generated valuable data on flight, motor and vehicle performance which our engineers will be reviewing. It also marks a key moment for the test flight program, entering now the exciting phase of powered flight and the expansion to full duration rocket burns. While we celebrate that achievement, the team remains focused on the challenging tasks which still lie ahead.

137. As further set out below, after the April 2018 flight, Virgin Galactic received notice from the manufacturer of its Reaction Control System ("RCS") that certain components were

defective. Unity uses RCS, a collection of pressurized nozzles along the outside of the vehicle's hull, to orient and position the vehicle in space and thin atmosphere when it can't use aerodynamic control surfaces. The manufacturer's notice stated that there was a risk that the nozzles that controlled the RCS might get stuck in the open position. If they did, not only would Unity spin out of control, the pilot might not have any pressurized gas left to right Unity.

138. Though the issue could have caused a catastrophe, Virgin Galactic waited until after the next flight, held on May 29, 2018, to fix the nozzles. In a same-day press release, Virgin Galactic declared this flight completely safe:

> The focus of today's flight was to expand our understanding of the spaceship's supersonic handling characteristics and control system's performance with vehicle parameters that were closer to the ultimate commercial configuration. This involved shifting the vehicle's center of gravity rearward via the addition of passenger seats and related equipment. The rocket motor burned for the planned 31 seconds and propelled Unity to a speed of Mach 1.9 and an altitude of 114,500 ft. As will be the case for future commercial flights, Unity's unique re-entry feathering system was deployed for the initial descent before the final glide home to a smooth runway landing.
>
> Once in commercial service, Virgin Galactic's spaceships are designed to be turned around and flown at a higher frequency than has traditionally been the case for human spaceflight. The flight today brought that vision a little closer, coming less than two months after Unity's first rocket powered flight. ***Great credit goes to the engineering and maintenance teams for working through the first flight's data diligently and efficiently before preparing Unity again for flight.***

139. On July 26, 2018, Unity flew again under its own power. Virgin Galactic had known before that flight that the pilot, David Mackay, had seemingly used RCS in rapid bursts. In fact, Mackay was not intending to use the RCS in this manner; instead, because of Unity's poor cockpit design, he was inadvertently triggering the RCS when he moved the yoke, the device used to pilot the plane. Virgin Galactic, though, did not address this issue before the flight. It nearly proved disastrous. As Mackay was inadvertently triggering the nozzles, Unity began to roll, and then to spin and tumble. Unity was rolling at a rate 10 times higher than its recommended

maximum. Mackay ran out of RCS gas and then nearly ran out of backup RCS gas while Unity was spinning out of control. Virgin Galactic only fixed the yoke after the flight.

140. Virgin Galactic claimed:

> Virgin Galactic test pilots broke Mach 2 this morning, as VSS Unity took her third rocket-powered supersonic outing in less than four months. After a clean release from carrier aircraft VMS Eve at 46,500 ft, pilots Dave Mackay and Mike "Sooch" Masucci lit the spaceship's rocket motor, before pulling up into a near vertical climb and powering towards the black sky at 2.47 times the speed of sound.
>
> * * * * *
>
> ***After a safe landing back at Mojave Air and Space Port***, Chief Pilot Dave Mackay summed up the experience: "It was a thrill from start to finish. Unity's rocket motor performed magnificently again and Sooch pulled off a smooth landing. This was a new altitude record for both of us in the cockpit, not to mention our mannequin in the back, and the views of Earth from the black sky were magnificent."
>
> * * * * *
>
> ***Every time VSS Unity is tested on the ground, or in the skies, we gain invaluable experience and fresh data. This continuously improves our modelling and helps us optimize objectives and test points as we progressively expand the flight envelope. Today's test, among other things, gathered more data on supersonic aerodynamics as well as thermal dynamics.***
>
> * * * * *
>
> ***Congratulations to everyone at Virgin Galactic and The Spaceship Company today for achieving another significant step towards commercial service. With VSS Unity, VMS Eve and the pilots safely back on the ground, we will now analyze the post-flight data as we plan and prepare for our next flight.***

E. Virgin Galactic's Redemption Story Was False

141. Right up to and through the Class Period, Virgin Galactic's operations were chaotic and dangerous. Many of Virgin Galactic's problems can never be remedied: Unity and Eve have several unsolvable problems that will prevent them from ever flying safely.

142. Scaled Composites built Eve and largely built Unity. Though the work on Unity was completed by The Spaceship Company, it was built based on Scaled Composites' designs.

143. Scaled Composites had not been hired to, and did not, build commercial vehicles for Virgin Galactic. The vehicles Scaled Composites built were intended to help Virgin Galactic design and build actual production vehicles suitable for commercial flights. Eve and Unity were only intended to withstand a few test flights, not fly for half a decade or more, let alone regularly fly customers to space.

144. But when it received the vehicles, Virgin Galactic used and designated them as commercial-vehicles-to-be.

145. Nor had Virgin Galactic contracted with Scaled Composites to produce detailed designs and engineering drawings. When Virgin Galactic severed its relationship, Scaled Composites produced some documentation. But either it had not been creating the documentation necessary for Virgin Galactic to understand what it had on its hands or it did not produce the documentation to Virgin Galactic.

146. Instead, Scaled Composites only provided sparse engineering drawings to Virgin Galactic. Some of the final drawings were laughably unreliable. Some were in crayon or on napkins with coffee or beer stains.

147. As a result, Virgin Galactic was continuously discovering that parts that were included in Unity and Eve's technical drawings did not actually exist. Because the technical drawings were used to model whether the vehicles would stand up to the forces they experienced in flight, it was anyone's guess whether the vehicles would perform as specified.

148. Virgin Galactic compounded the problems by failing to consistently keep track of the modifications it was making to Unity and Eve. When it did keep track of the modifications, it often did not keep track of the parts it used to make repairs. Because many of Unity and Eve's

parts are meant to last for only so many flights or months, Virgin Galactic often replaced parts when it discovered that they were worn down and should have been replaced months before.

149. And when Virgin Galactic did fly its vehicles, the damage was alarming. Eve and Unity developed cracks on their wings after ***every single flight***. On any given flight, the cracks that developed might bring the plane down. The cracks were often internal, and sometimes deep and long. When the vehicles landed, Virgin Galactic took one of two actions. Either it fixed the cracks, thus inevitably delaying the flight schedule, or it didn't, thus imperiling the flight crew and passengers on the next flight. It chose the latter very often and, as a result, by the beginning of the Class Period, the vehicles' wings were riven with cracks.

150. Virgin Galactic recognized that Unity's tail booms and stabilizers needed heat shielding for when it was re-entering the atmosphere, so it installed some. But that heat shielding was strictly ornamental because the heat from the rocket engine plume burned it off when it flew into space, every single flight.

151. Virgin Galactic's inspections and processes could not reliably detect problems. They were largely pro forma. FE 8 once caught a technician running a test that required interpretations of delicate sounds next to an operating power sander. Indeed, an inspection of Unity before the February 2019 flight missed that several panels on horizontal stabilizers were still loose, that there was a baggie of screws taped inside the horizontal stabilizers (which explains why the panels were loose), and that airholes necessary for the horizontal stabilizers to depressurize during the flight had been covered in Kapton, a type of metalized foil commonly used in the space industry. Each of these deficiencies could have brought down Unity; the Kapton nearly did.

152. Thus, every flight was a catastrophe waiting to happen. That Unity and Eve have not yet killed anyone else is a testament to Virgin Galactic's elite test pilots aided by a great deal of luck.

a. Scaled Composites Repeatedly Told Virgin Galactic Not To Use Unity and Eve For Commercial Service

153. Virgin Galactic hired Scaled Composites to help design a prototype, not a commercial vehicle. But instead of using Scaled Composites' work product as inspiration for its own commercial vehicles, Virgin Galactic used prototypes as commercial-vehicles-to-be.

154. FE 6 explains that all of Scaled Composites' vehicles – including Enterprise, Eve, and Unity – were "research vehicles" that were never intended for commercial use. They were designed as, and meant to be, "one-off" vehicles – prototypes. Creating production vehicles had never been part of Scaled Composites' "mission." Scaled Composites' vehicles – again including Enterprise, Eve, and Unity – were "home-built" with "very little" testing.

155. According to FE 6, Scaled Composites' contract with Virgin Galactic clearly stated that Scaled Composites would deliver bare prototypes. The prototypes were just engineering tools that Virgin Galactic would use to facilitate their own design and as training for their own operations. Indeed, FE 6 says, based on his involvement actually building the prototypes, that the contract clearly and specifically stated that the vehicles Scaled Composites delivers ***are not meant to be used in a commercial capacity***.

156. FE 6 reports that Scaled Composites built the vehicles with the understanding that they were only prototypes. Scaled Composites built the vehicles quickly, did not conduct material testing, and did not design the vehicles to survive more than a few flights.

157. But, FE 6 reports, as the delivery dates approached, it became clearer and clearer to Scaled Composites that Virgin Galactic actually intended to use the vehicles in a commercial capacity.

158. According to FE 6, Virgin Galactic was struggling to live up to the schedule Branson had promised. Thus, Virgin Galactic used the vehicles in a commercial capacity because they didn't have time to build its own structurally-sound, airworthy vehicles. And after Scaled Composites delivered the prototypes, Virgin Galactic did in fact use them as commercial-vehicles-to-be.

159. FE 6 adds that Unity, Eve, and Enterprise, are not certified under FAA Part 23. By definition, this means that their designs and operation were very likely not in accordance with the well-established, industry standard, FAA-recommended best practices for aircraft design that would assure airworthiness. It means, as well, that the vehicles did not receive nearly as much testing as required to be considered airworthy. Since receiving the vehicles, The Spaceship Company had been running more tests. But these tests were intended to mitigate some of the risks or test one-off inspection or repair techniques, rather than to bring the vehicles into compliance with airworthiness standards. And to this day, Unity, Eve, and Enterprise have not gone through a comprehensive life cycle testing program.

160. Now, five and ten years after Unity and Eve entered service, respectively, they are well past their expiration dates. According to FE 6, Virgin Galactic is "pushing [its] luck" by continuing to fly them.

b. Virgin Galactic Never Got Reliable Engineering Drawings Of Unity and Eve

161. According to Mr. Meholic, engineering drawings are detailed representations of aerospace vehicles as they actually exist. Drawings provide crucial information such as every part

in the vehicle, the exact thickness and composition of each part, and its specifications, dimensions and tolerances, so that the part can be manufactured with minimal variation. Engineers use these drawings to model and define the vehicles' performance, determine when parts need to be replaced, and to understand what needs to be changed and how, and what doesn't.

162. According to Mr. Meholic, engineers also used detailed engineering drawings to analyze the causes of an incident or failure of a component. If a bracket falls off during a flight, for example, detailed engineering drawings will let Virgin Galactic know whether the bracket was improperly installed (e.g., not installed at the correct location), improperly manufactured, or improperly designed. That knowledge will inform Virgin Galactic's response. The first suggests installing the bracket correctly will suffice, the second that the manufacturing process needs to be improved, and the third that a substantial redesign is required.

163. According to Mr. Meholic, engineers should supplement detailed engineering drawings with literature that provides the reasons why particular parts are made in particular ways and installed in particular places along with the engineering calculations and analyses to support the rationale. This literature also explains the requirements the parts must meet, and the normal and maximum rigors they are expected to withstand, alerting engineers that they may need to re-examine or redesign the part if other aspects of the vehicle if other aspects of the vehicle (e.g., its weight or anticipated speed) change.

164. Scaled Composites built Eve and completed the lion's work building Unity. When Virgin Galactic severed the relationship, Scaled Composites turned over some engineering drawings, leaving The Spaceship Company to complete Unity.

165. According to FE 6, Scaled Composites' obligation under its contract with Virgin Galactic was limited to delivering just the vehicles themselves, along with some limited paperwork

and test data. Scaled Composites had no obligation to deliver engineering drawings or documentation.

166. According to FE 3 and FE 8, while Virgin Galactic and The Spaceship Company completed Unity, they did so with what they could understand of Scaled Composites' drawings.

167. According to FE 1, the Unity drawings that had been turned over to The Spaceship Company and which it in turn turned over to Virgin Galactic were flimsy. FE 1 went so far as to say that The Spaceship Company did not turn over detailed engineering drawings at all. Nor did it turn over the detailed literature that would explain why parts were designed a certain way.

168. FE 3 reports that Scaled Composites did not turn over detailed engineering drawings of Eve, either.

169. According to FE 3, by 2017, there was "bad blood" between Scaled Composites and Virgin Galactic. Virgin Galactic had unfairly blamed Scaled Composites (in its view) for the 2014 accident. So, according to FE 3, there was "no significant company-to-company communication."

170. What documentation there existed bore signs that it was incomplete or unreliable, or both. FE 3, FE 7, and FE 8 all reported that some of the final design drawings for Unity's and Eve's parts were on napkins or done in crayon. According to FE 8, in some cases, the napkins were stained with coffee. In others, they were stained with beer.

171. According to Mr. Meholic, the napkins and crayon drawings were plainly first drafts that were not made in an office setting. Like anyone else, an engineer might draw an idea on a napkin. But the engineer would then convert the napkin to an engineering drawing to make parts, then likely test the part to determine whether they work and withstand stresses.

172. But according to FE 8 and FE 7, there were no signs that the napkin or crayon-drawn parts had ever even been converted to formal drawings, let alone properly tested.

173. According to FE 3, Virgin Galactic employees had to put "blind faith" in the napkin drawings, "go by what it says", hope it was correct, and then wait to find out if it had been.

174. Plainly, engineering paper drawings, tools, and software allow a precision that napkins and crayons lack. Further, according to Mr. Meholic, that the parts in question are on a vehicle that will ***take people to space*** means the analyses are not optional.

175. And indeed, FE 7 reports that the napkin drawings and others frequently did not have enough detail for Virgin Galactic to understand the part's dimensions or specifications. The drawings sometimes had so little detail that it was unclear what the part was even supposed to look like. At that point, "we were just lost."

176. Even if Virgin Galactic could discern a part's actual dimensions and specifications, they usually could not know why a change was made. According to FE 7, it would be unclear whether a part was found to be obsolete, that something was being added to the part to, say, increase rigidity, or that the part had failed.

177. According to Mr. Meholic, companies must know why a part was changed to know what to do if something happens or if the company wants to change the vehicle's design. If a part failed because it was too weak, for example, the company should ensure that when it changes other things in the vehicle, it doesn't compromise that initial improvement. The company should also consider the conditions under which the part failed to determine whether it failed under normal conditions, or in excess of requirements. If the part was installed to meet a specific requirement, then the company might consider examining the requirements to ensure they are still needed and that the design meets those needs.

178. With little or no documentation, FE 7 reports, Virgin Galactic often had to perform custom-made stress tests to reverse engineer the vehicles' configuration and capabilities or that of specific components. The process had two disadvantages. First, it wasted enormous resources and time, as engineers had to devise and implement novel one-off tests. Second, it was impossible for Virgin Galactic to reconstruct all the information that should have been contained in the engineering drawings or the accompanying documentation.

179. One issue in particular bedeviled Virgin Galactic's mechanics and engineers. Unity is made substantially of carbon composite materials. Its skin, among other components, is made of stratified layers of carbon composite and resin. The resin glues the carbon composite layers together.

180. The number of layers of glue and carbon composite, much more so than their thickness, determines the properties of the object. A one-inch-thick section of Virgin Galactic's skin made of 5 layers of carbon composite and resin would have very different properties than a one-inch-thick section made of 10 layers. Yet because Virgin Galactic lacked sufficient engineering drawings, it could only determine the thickness of the vehicles' components, not the number of layers, and that only after lengthy inspections.

181. Because it takes an enormous amount of energy to fly vehicles even to sub-orbital altitudes, engineers strive to minimize their weight. Yet if there are too many layers, the vehicles will weigh more than they need to. Thus, Virgin Galactic will want as few layers as possible.

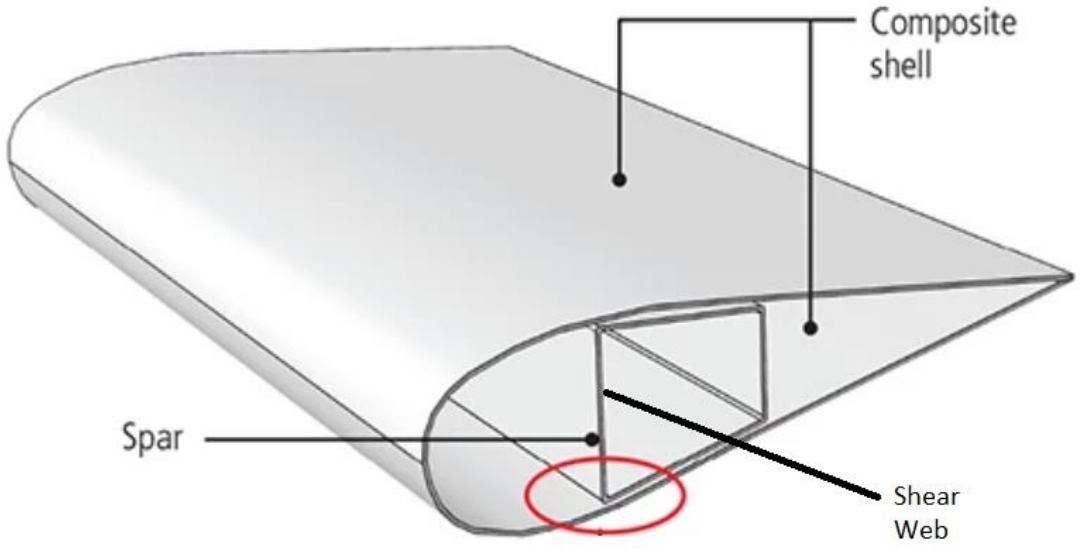
182. But if there are too few layers, parts might fail, potentially causing a catastrophe, so more must be added. To reach space, Unity must fly at more than 2,600 miles per hour. This is twice as fast as the Concorde and 60% of the unofficial world airplane speed record. According to FE 1, at those speeds, differences of three or four layers are meaningful. Yet with Unity, the

uncertainty was vast. FE 1 recalls that in some cases, the number of layers might be anywhere from 50 to 200 as far as Virgin Galactic knew.

183. According to Mr. Meholic, there was also likely no non-destructive way of determining the number of layers. Virgin Galactic would have to cut a sample from the component. Yet doing so destroys the component. Virgin Galactic had not addressed this problem when FE 1 left Virgin Galactic in December 2020.

184. FE 3 reports one instance in which it took years for Virgin Galactic to discover that a key component required for the structural integrity of Eve's wings did not exist.

185. According to FE 3, the wing's skeleton was built from spars that were laid parallel to the long side of the wing, and ribs, which are laid perpendicular to the long side. Eve's documentation, which informed stress modeling, reported that the spars created a box-like structure. The box structure was supposedly composed of two main horizontal caps (upper and lower) and two supporting vertical webs, called shear webs. The shear web provided rigidity to the spars.



186. According to FE 3, Eve was flown two or three times shortly after the October 2014 crash. Then, beginning January 2015, Eve spent ten to twelve months in the shop while Virgin Galactic engineers and technicians strengthened its wings.

187. The work complete, Virgin Galactic took Eve on at least six flights in 2016.

188. Yet according to FE 3, it took until 2017 for Virgin Galactic to discover that there was ***only one*** supporting shear web. There was no box-like structure. The design was entirely different from what Virgin Galactic imagined it had been. The discovery was, in FE 3's words, "scary".

189. For years, Eve had been flying without a key structural support that its engineers had assumed was there. The wings could have broken.

190. According to FE 3, when they learned that the wings' engineering drawings included a part that wasn't there, Virgin Galactic's engineers reviewed the documents that Scaled Composites had dumped on them. The engineers discovered some pictures of the wing taken after its installation. In the pictures, the wings indeed only had one shear web. Scaled Composites had amended the design without amending the engineering drawings, and it took Virgin Galactic half a decade to notice.

191. This incident was not unusual. According to FE 3, it happened "all the time" that Scaled Composites' drawings documented parts that were not actually in Unity or Eve. Indeed, FE 3 reports that Scaled Composites had made "a million [undocumented] changes" so that Eve is "nothing like it was supposed to be." The engineers had difficulty doing stress modelling and sometimes it was a "wild guess" whether the repairs they ordered would be strong enough.

192. Virgin Galactic still had not determined the vehicles' actual configuration ***in 2021***. According to FE 8, there were things "we thought" were in the vehicles that weren't, and vice

versa. And sometimes Virgin Galactic knew that a part was there but had no idea why. For example, there is a piece of metal in Unity's wings whose purpose no one at Virgin Galactic knows. The part did not appear to perform any structural functions. Virgin Galactic thought of removing it, but it would take a lot of work and would likely cause damage in the process, so it was retained. Thus, to this day, there is a piece of metal in Unity's wings and no one knows why it's there.

c. Virgin Galactic Did Not Keep Track of the Changes It Made

193. Scaled Composites' drawings were clearly inadequate. Yet Virgin Galactic's own subsequent work created even more uncertainty.

194. Virgin Galactic's teams are divided into engineers, technicians (the Space Wrenches), and inspectors. Broadly speaking: the engineers design and model the vehicles' responses to stresses and order design modifications; the technicians implement the changes; and the inspectors determine whether the changes were properly implemented, inspect the vehicles before and after every flight, and conduct additional inspections to find defects.

195. Virgin Galactic's technicians and engineers used software called Ultramain to keep track of engineering's assignments and the status of the shuttle. According to FE 2, an engineer, engineers first drafted engineering orders, which appeared in redlines to existing drawings.

196. FE 5 then took these engineering drawings and created instructions for technicians.

197. FE 3, a technician, corroborates FE 2's and FE 5's account. He reports that once an engineer signed off on an engineering order, it was sent to maintenance control (i.e., FE 5's office). He adds that when maintenance control translated the engineering order to specific steps, it was published on Ultramain. Technicians then used iPads to access Ultramain and obtain their assignments to complete the engineering order.

198. The system was a chaotic mess. According to FE 3, Ultramain is a maintenance tool designed for staid aircraft that had been fully designed and tested, where maintenance was merely an exercise in going down a well-established checklist set out in a manual. It was completely unsuitable to Virgin Galactic, whose products were rapidly changing prototypes.

199. According to FE 3, Ultramain could not accommodate changes in engineering orders. Once an engineer signed off on an engineering order, the task was "published" onto Ultramain to be parceled out. After the engineering order was published, it was no longer possible to edit it to add steps. If Engineering changed its mind, or if technicians told Engineering the engineering order could or should not be completed because it was impossible to do so, it might damage the vehicle, or whatever other reason, Engineering could not simply enter a change to the existing engineering order. Instead, Engineering had to create a redline and publish it as a new engineering order.

200. Publishing a new engineering order wiped the old engineering order from the system. If, as was usually the case, technicians had already completed a task and signed-off on it, their sign-off did not carry over onto the redline.

201. Virgin Galactic's engineering orders were very complicated and involved many engineers. According to FE 3, engineering orders that required hundreds of work hours from ten technicians were common. Here again, Ultramain was not suitable for Virgin Galactic's operations. When a redline of a complicated task erased previous work, lead technicians had to contact every team member to determine whether they had signed off on particular steps. Ultramain would reveal that a technician was working on a particular task, but not which technician.

202. Thus, the lead technician would not know for sure which technicians had completed tasks on a particular engineering order and could easily miss them. Work that had been ordered was often never completed without anyone knowing that it had not been.

203. Virgin Galactic also suffered from an epidemic of work that was completed but hadn't been ordered. According to FE 3, for example, engineering orders sometimes called for technicians to apply one layer of resin. If the technician applied a layer of resin and signed off on the task, but that technician's sign off was lost because Engineering entered a redline of the engineering order, then an additional layer of resin would probably be applied. That additional layer would not be documented in the vehicle's engineering drawings, which would instead reflect that there was only one additional layer of resin, when in fact there were two. Mistakenly applying two layers of resin instead of one "absolutely happened."

204. And even if the lead technician did find all technicians who accurately reported their tasks, Ultramain still did not provide sufficient information. According to FE 3, technicians were supposed to put down the name, lot number, serial number, and expiration date of the part they installed or the resin they used in fulfilling an engineering order, in a narrative section on Ultramain. This lets Virgin Galactic know when a part must be replaced. Publishing a revision also erased technician's notes of the name, lot number, serial number, and expiration date. The lead technician would have to hope that each technician had written down the narrative section elsewhere than in Ultramain or somehow remembered what tasks they had completed and what components they had used. After multiple rounds of modifications to engineering orders, there was no record of what parts had been installed and their expiration dates.

205. For these reasons, among others, according to FE 3, mechanics hated Ultramain "with a passion". They even preferred to work with ***pdf drawings***.

206. FE 2 reports, from Engineering, that engineers couldn't access engineering orders after a redline was published, either. Further, FE 2 reports that technicians sometimes discovered problems with the components on the spacecraft and did not document the preventative maintenance they then conducted to address the issue. FE 2 also reports that technicians did not always update Ultramain when they replaced a component. FE 2 asserts that as a result, Engineering did not have an understanding of the vehicles' actual condition and configuration.

207. The consequences FE 2 describes result from the problems FE 3 details.

208. FE 2 also reports on the information lost. Virgin Galactic's engineers used CAD ("computer-aided design") software to keep track of designs and parts. Both CAD and Ultramain kept track of components and serial numbers. But the two databases were inconsistent. The components' serial numbers in the two databases frequently did not match up. In other instances, they were missing entirely. FE 2's learning about such a mismatch was a weekly occurrence, even though he was only told of a discrepancy when the mismatched serial numbers created safety issues.

209. This created substantial safety risks. According to FE 2, some of Unity's parts are "flight cycle dependent", meaning that they could only be flown so many times before they needed replacement or inspection. Yet Virgin Galactic's engineers frequently did not know how old Unity's components were. FE 2 analogizes the problem to not knowing the age of brakes or tires on a car. Without this knowledge, Virgin Galactic would not know if a part has endured too much wear and tear and should either be replaced or taken in for some maintenance such as applying oil or some other substance. Thus, instead of proactively replacing parts when they expired, Virgin Galactic usually only replaced them when technicians noticed that parts were "really worn down" and should have been replaced "months ago."

210. According to FE 5, because there were so many changes and redlines, Virgin Galactic personnel could not go into the system and use the original engineering definitions, but would instead have to find the correct, newest redline version. Virgin Galactic made "constant changes" to the engineering drawings, which was "disheartening".

211. FE 1, who headed Virgin Galactic's inspection teams, corroborates FE 3's account. According to FE 1, Virgin Galactic stored engineering drawings of its vehicles on folders accessible through SharePoint. The engineering drawings were supposed to reflect the vehicles' current configuration, including redlines, and all pending work orders. But instead of having one drawing for Unity that reflected all changes in redlines, the company would often instead simply create new drawings. FE 1 estimates that there were 500 re-drawings just of the cabin's interior. Further, in many cases, a new drawing or redline would be released though it had not actually been approved by Engineering. Some of these drawings and redlines were never approved, but inspection didn't know that Engineering retracted the drawings.

212. According to FE 8, Virgin Galactic named successive drawings like software companies named versions of their product. The first drawing is numbered 1, the second 2, and so on. The first redline to the first drawing is numbered 1.A the second redline to the first drawing is 1.B, the first redline to the second drawing is 2.A, and so on. The problems that bedeviled Virgin Galactic meant that FE 1 and sometimes Engineering itself would not know the correct revision. For example, they might not know whether the latest version was 1.F or 2. Further, there might be two different versions of 1.F, with both engineering and inspection unsure which version to use as the basis for 1.G or version 2.

213. Even to find the candidates for latest version, FE 1 had to engage in "data mining" in the folder. FE 1 estimates that about 25% of the time, it was impossible to tell which revision

was the correct one because of unreliable revision numbering. In the remaining cases, FE 1 and her team were never certain that their data mining had unearthed the correct drawing. According to FE 1, if they were lucky, "someone came down screaming" if they used the wrong engineering revision to perform maintenance. But it was relatively common for the engineers not to identify the discrepancy when the technicians used the wrong drawing to upgrade the vehicle or install a component. As a result, it was "100%" certain the inspection staff missed deviations and therefore that the vehicle's drawings and document "did not match the reality". Further, according to FE 1, the problem got ***worse*** during her tenure.

214. FE 4 identifies a remarkable instance of sloppy documentation. One day, FE 4 was trying unsuccessfully to install an elevon on Unity. FE 4 had relied on engineering drawings to install hardware to keep a pin in place. Seeing him struggling, another technician told him that Virgin Galactic had modified the part so that the amount of force needed to move it had doubled or even tripled. The change had not been documented in any engineering drawings or the like. Instead, the only documentation was an email that had been sent out to certain employees (but not to FE 4). Worse, the problem was on a flight control item, meaning that it affected how pilots would control the plane during flight. Thus, engineers and mechanics who did not receive or remember the email, including new hires, would not know of the change.

215. When FE 4 raised similar concerns, they were "swept under the rug" and written off as "growing pains."

216. FE 1 called Virgin Galactic's documentation of its systems, maintenance, and repairs "loosey-goosey." FE 1 cites additional myriad issues and discrepancies in the maintenance documentation. These included the same deficiencies described by FE 2 and FE 3 above – not documenting what materials had been used, or their serial numbers, expiry dates, etc. But they also

included even more basic hazards, like not recording the dimensions of a given item that had been repaired.

217. The result was chaos. FE 1 reports that especially when dealing with the cabin's interior, no one seemed to have any idea what the latest design was. As a result, Engineering would enter nonsense engineering orders, like requests to attach brackets in locations that didn't exist.

218. FE 1 reports on one other instance, among many. During the Class Period, Virgin Galactic attempted to replace Unity's manual horizontal stabilizer controls with digital controls. The digital controls were wired, so technicians needed to know where to put the wires. Engineering created technical specifications showing where to put the wires. The technicians then tried to implement the engineering order. But they found, over and over again, that Unity's actual structure looked nothing like what Engineering had pictured on the engineering order. For this reason, FE 1 reports, technicians spent months on end just to install some wires in Unity.

219. And FE 1 reports that certain employees of The Spaceship Company engaged in exceptionally dangerous conduct that potentially amounted to fraud. According to FE 1, technicians would send used parts to The Spaceship Company for analysis. When returning the part, The Spaceship Company employees had to fill out a form that, among other things, asked for the part's age. Even though the parts had been flown, The Spaceship Company employees would state that the parts were new. FE 1 recalls that this happened with Unity's hinge pin. In other cases, The Spaceship Company would just designate used parts as new.

220. FE 7 identified similar dangers. According to FE 7, Virgin Galactic used molds to make its own composite parts. Virgin Galactic should but did not have a documented "process spec" for each mold as well as documentation for the materials that were being used. Documentation was particularly important for adhesives, as they had finite shelf-lives. Thus, like

FE 2, FE 7 reports that Virgin Galactic did not know the age of its parts. FE 7 calls this a "big problem".

221. Moreover, according to FE 7, before around 2016, Virgin Galactic made parts in such a way that technicians had to break the mold to get the part. Because every part was made with a different mold, even ostensibly identical parts were actually different.

222. According to FE 7, Virgin Galactic did eventually change its component manufacturing process. But Virgin Galactic never replaced the legacy non-standard parts that had been installed in Unity and Eve. These non-standard parts had been used in the primary structures of the vehicles, which meant they were permanently integrated into the vehicle. They are there to this day.

223. According to FE 7, Virgin Galactic did not even purge the non-standard legacy parts that had not yet been installed. Instead, Virgin Galactic kept them in inventory and slowly consumed them on Unity and Eve.

224. As a result, FE 7 reports, there were "a lot of fit issues" between new standardized components and the legacy non-standard components.

225. FE 2 cites one example of a near disaster. In a 2018 post-flight inspection that resembles a sonogram, Virgin Galactic discovered that the resin in some of Unity's parts had developed large internal voids. The voids turned out to be large cracks that opened during the flight. According to FE 2, the subsequent investigation determined that the resin that held Unity's frame together had been left out too long in open air before being used, resulting in a process called amine blushing. As FE 2 explains, just as glue left out too long loses some of its effect, amine blushing causes resin to lose some of its bonding properties.

226. According to FE 2, Virgin Galactic was "extremely lucky" the structure did not fail. The cracks could easily have become large enough to cause an aerodynamic rip similar to the 2014 accident, which would have destroyed Unity and killed everyone on board. The discovery "shook our boots".

227. According to FE 7, the resin's chemistry can change depending on heat, humidity, time spent frozen, and time spent thawed before application. Indeed, resin might be safe to use for only 10-12 hours after thawing. Yet Virgin Galactic frequently tracked none of these things.

228. Schmidle corroborates FE 2's account in full. He reports that Virgin Galactic made the discovery in September or October 2018. He reports (in Schmidle's words) that the discovery:

> [M]ade Stucky uneasy. He was okay flying an imperfect ship if he knew where the imperfections were. But on his spectrum of real versus imagined risks, a bad bond qualified as very real. He shuddered to think about charging through the atmosphere at twice the speed of sound if suddenly one of those air bubbles in the bond popped and caused the boom to shear off.

229. Indeed, Virgin Galactic was well aware that the weak bonds were potentially catastrophic but hadn't done much to address the risk. Schmidle quotes 2013 correspondence from Defendant Moses:

> "Heads up", Moses had informed the management team, back in 2013. "We are finding some deeper issues, including the upper wing skin being debonded in places from the wing spar."

230. To keep to the schedule, Virgin Galactic did not inspect every bond, as Stucky suggested. Instead, they only examined one particular location. In Schmidle's words:

> Stucky suggested the engineers test every bond on the ship by slapping industrial-size suction cups on the outer skins and then trying to pull them off. His recommendation was deemed indelicate. Instead, the maintainers cut panels into the flawed boom, so, with the aid of borescopes, the techs, working blind in narrow crevasses with sometimes only an arm inside the ship, could track their progress on a flat-screen monitor.

231. As further set out below, it takes great skill to use a borescope to detect internal cracks. But, as FE 8 said, the technicians who carried out the inspections were just "some guys with a borescope."

d. Virgin Galactic Defers Maintenance Even When It Knows of Specific Deficiencies That Could Cause an Accident

232. Because Virgin Galactic did not understand its vehicles, problems frequently surfaced. When they did, Virgin Galactic swept them under the rug.

233. FE 2 reports a particularly striking example of deliberately concealing problems. Before every flight, Virgin Galactic holds a company-wide Flight Readiness Review. Before every formal Flight Readiness Review, particular divisions rehearse their Flight Readiness Review presentations. FE 2 recalls that at one such rehearsal, which Defendant Moses definitely attended and which Director of Safety Tim Logan may have attended, one of FE 2's colleagues presented a slide that said certain maintenance had been deferred because it would affect flight scheduling. A Virgin Galactic Vice-President told FE 2's colleague not to include the slide in the final Flight Readiness Review. According to FE 2, because many of Virgin Galactic's senior management (including Moses) are NASA veterans, they know they can't put "on paper" that Virgin Galactic was deferring maintenance to stick to flight scheduling because "that's how bad things happen." FE 2 himself knew, and knew that others in the company knew, that had there been an accident, the NTSB would investigate and the first thing it would review was the Flight Readiness Review slides.[8]

[8] In its investigations, the NTSB regularly consults slides from pre-flight safety reviews. For example, the NTSB's report on the October 2014 crash cited slides from an April 2011 Flight Readiness Review and made it clear that the NTSB had looked through every pre-flight safety review.

234. Thus, the Vice President didn't want to document that maintenance was deferred due to scheduling so that if there were an accident, the Virgin Galactic employees who had authorized the flight would not face consequences.

235. FE 2 reports other times Virgin Galactic ignored critical problems. Because they did not know the vehicles' configuration or components, FE 2 and the other safety engineers sought to ground the shuttle to audit its components to at least make some progress towards obtaining an accurate understanding of Unity's configuration. They told management the ignorance of configuration was dangerous. An audit would have required "peel[ing] away" the access panels to see the components underneath – essentially disassembling and reassembling Unity. Management refused, however, citing the delays an audit would cause, ordering the engineers and technicians to run an audit in parallel with flights. This work was never done during FE 2's tenure.

236. According to Mr. Meholic, it is not possible to audit parts or bonds without grounding Unity. To audit critical structural bonds, Virgin Galactic would have to remove particular parts of Unity's skin and examine them. The examination would destroy the part, so Virgin Galactic would have to install a new part. This is impossible without grounding Unity for extended periods. To audit parts, Virgin Galactic would have to remove parts from Unity to find their serial number and, for custom-made parts, their dimensions and properties. This, too, is impossible without grounding Unity for extended periods.

237. And FE 2 identified one other module in which Virgin Galactic repeatedly ignored known safety issues before flights that could have resulted in a catastrophic accident. Unity uses a Reaction Control System ("RCS"), a series of pressurized nozzles placed along the outside of the vehicle's hull, to orient and position the spacecraft in space or thin atmospheres. After Unity's first powered flight, the RCS manufacturer told Virgin Galactic that the valves in the RCS were

defective and one or more could become stuck in the open position. The RCS would then continuously spew compressed air, which could cause the pilot to lose control over the shuttle. In space, the shuttle would spin around and around; in the atmosphere, the pressured air would continuously push Unity.

238. According to Mr. Meholic, RCS valves are fed from a central propellant tank with perhaps a redundant tank in case of failure. Thus, an open RCS valve would also rapidly deplete all of Unity's RCS propellant fuel, which would make it impossible to steer in space or thin atmospheres.

239. According to FE 2, the engineers wanted to replace the valves immediately. RCS are mission-critical. Without them, Unity ***cannot*** steer in space. Yet citing the upcoming powered flight, Thom Howell, Virgin Galactic's Deputy Director of Engineering, refused to replace the valves. Howell reports directly to Defendant Moses.

240. Mercifully, the RCS nozzles did not fail on the next powered flight.

241. Unity's third powered flight took place on July 26, 2018. According to Schmidle, during the flight, Unity started tumbling, and the pilot David Mackay exhausted Unity's main RCS, and nearly exhausted its backup RCS, trying to right the ship. Yet Unity was still spinning out of control. Its recommended pitch rate, the rate of change of aircraft orientation relative to an inertial frame, was only five degrees per second, but Unity's pitch rate then was fifty degrees per second, so the shuttle would complete a revolution in only slightly more than seven seconds. Only the feather saved the pilots and shuttle from a catastrophe.

242. According to FE 2, the pilot's overuse of RCS was inadvertent. Unity's yoke, the device the pilot uses to steer Unity, can be moved 360 degrees. When the pilot pulls it to the far side, he or she can accidentally trigger the RCS system. That's exactly what Mackay did during

the flight. FE 2 reports that after the flight, the engineers reworked the cockpit to prevent exactly this mistake.

243. According to Schmidle, Virgin Galactic knew about the risk of inadvertently triggering RCS before the July 2018 flight. In fact, Stucky and Mackay exchanged words about the risks of running out of RCS before that flight.

244. The business plan Defendant Branson imposed on Virgin Galactic increased pressure to ignore safety issues. Year after year, Branson made outsized promises that flights were just around the corner. Pressed by Schmidle, Branson admitted that it "would be embarrassing if someone went back over the last thirteen years and wrote down all my quotes about when I thought we would be in space". But, as Branson explained, his deception is calculated:

> If you're an optimist and you talk ahead of yourself, then everybody around you has got to catch up to try and get there.

245. Just as Branson intended, Virgin Galactic's employees had to attempt to meet his absurd deadlines.

246. According to FE 8, FE 7, FE 3, and FE 1, management set unrealistic deadlines.

247. According to FE 7, the deadlines were aggressive and "very unrealistic", but there was always "a lot of resistance" from Virgin Galactic's executive leadership team, and in particular Enrico Palermo, The Spaceship Company's President, to changing the deadlines. As a result, "in the end, leadership would say to drop requirements to meet deadlines" or falsely claim that goals had been met when there were still many underlying elements that hadn't been completed. Leadership acknowledged the work had in fact not been completed and promised they would address the problems later – "but they never did." When he asked, FE 7 would be told the directions "were coming from Palermo".

248. Indeed, Virgin Galactic did not even develop a master schedule to address future maintenance; it just used a spreadsheet that FE 7's manager "was always trying to figure out."

249. And when Virgin Galactic employees were able to convince management to act responsibly and fix defects, the deadlines just slipped. According to FE 5, it was a "regular occurrence" to have to push off deadlines by two months to effectuate some "major repairs" that management had just been persuaded were necessary. Indeed, FE 3 "could not remember a time it didn't happen" that a deadline was pushed back because Virgin Galactic discovered something that needed remediation.

250. Nor were they limited to Unity. FE 3 recalls an instance in 2017-2018 where he found cracks on Eve's outboard wing's right side. He reported the incident to his crew chief, Rosacker. But Rosacker did not want to repair the cracks because he was up against a deadline. The problem was only resolved because FE 3 went directly to an engineer to get Engineering to redline the engineering order to repair the cracks.

251. FE 4 did not have as much success. Unity carried some loose items, like a first aid kit. During flight, the loose items were placed in a cargo net. The cargo net was secured to the wall with a carabiner. FE 4 observed that the carabiner was weak. It was the type used to hold keys. The carabiner could easily break in a flight or rough landing, because Unity encounters extraordinary stresses and loads. FE 4 asked his manager to use a stronger carabiner to prevent breakage, but the manager ignored the request.

252. Indeed, not only did Virgin Galactic sweep the problems under the rug, they fired the engineers who raised them. FE 2 left in early 2019, weeks before Virgin Galactic terminated its entire Systems Engineering & Integration team.

253. As FE 1 summed up, technicians and inspectors kept yelling "Fire!", but senior management ignored them.

e. Unity and Eve Develop Cracks After Every Flight

254. Former employees consistently report that Unity and Eve constantly developed cracks.

255. FE 2 and FE 7 (both engineers), FE 3 (a technician), and FE 1 (an inspector) all agreed that Eve developed cracks after ***every*** flight. FE 7 and FE 2 add that Unity also developed cracks after every flight. Indeed, FE 2 calls Unity a "flying band-aid."

256. According to FE 3, the cracks were structural. About 90% of the cracks were in places where components had been bonded together with resin. For the most part, the cracks were not remediated. As a result, FE 3 reports, Eve's wings were full of cracks.

257. According to Mr. Meholic, winged vehicles may develop cracks that are either parallel to the long side of the wing ("spanwise") or perpendicular to it ("chordwise"). Different forces cause the spanwise and chordwise cracks, and they have different consequences. Spanwise cracks, in particular, can be caused by or induce an unpredictable, unstable feedback loop in the wings' natural oscillations called flutter. As flutter oscillations get stronger and stronger, the wing could fail and fall off. Chordwise cracks, while less dangerous, could tend to show that forces that bent the wings were overstressing its skin. Without detailed, skillful examination, Virgin Galactic will not know the cause of the crack nor how much danger it poses.

258. According to FE 7 and FE 2, many of the cracks were especially dangerous because they were spanwise.

259. According to FE 7, the cracks were always obvious. Moreover, FE 7 reports that after every flight, Virgin Galactic employees would visually inspect Unity in the hangar.[9]

260. FE 7 also reports that technicians were always working on or repairing Eve's wings because of cracks. The cracks appeared in key structural components, including spars. According to FE 7, the cracks could bring down Eve.

261. Before FE 8 and FE 1, Virgin Galactic never attempted to determine why cracks formed on Eve's wings. During their tenures, Virgin Galactic conducted a "huge study", which determined that when the resin is over a certain thickness, it will crack, because it is "extremely brittle".

262. Because resin is the default adhesive and was slathered on many parts of Eve and Unity, the finding was a major concern that Virgin Galactic should have known about a decade earlier.

263. FE 7 cites another problem that occurred after every test flight. Unity's booms (tails) were covered in Kapton, a film used to shield space vehicles from high heat, so that they would not be damaged on re-entry. The film burned off every single time Unity used its rockets, leaving Unity with no heat shield to protect its components. With no heat shield, Unity risked a catastrophic failure.

264. And yet Virgin Galactic kept reapplying the same defective heat shield material before every flight.

[9] Schmidle reports that after the February 2019 flight, both Stucky and Virgin Galactic Safety Director Todd Ericson were watching Unity as it was wheeled in to the hangar.

f. Virgin Galactic's Flight Control System Kept Breaking Mid-Flight

265. FE 7 bluntly stated that he would not be willing to fly on Unity. FE 7 cited numerous missing redundancies including in Unity's flight control system. As FE 7 described, Virgin Galactic employed a push-pull flight control system. When the pilot moved the yoke, for example, a series of rods and cables physically connected to the yoke would cause the movement the pilot entered.

266. According to FE 7, Unity's mechanical flight control system had no redundancies. Thus, if a linkage buckled, the pilot would no longer be able to control that portion of the vehicle.

267. According to FE 7, linkages actually buckled when they were tested in flight. Virgin Galactic's response was simply to strengthen the particular linkages that had failed a little bit, rather than the entire chain. But then the next-weakest link in the chain would break. Thus, Virgin Galactic was always chasing its own tail.

*g. Unity Creates an Employee Lottery For A Ticket To Fly on Unity, But the Crew Chief Responsible For Building Unity's Progenitor Responds "H*** No"*

268. Before FE 6 left The Spaceship Company in March 2020, Virgin Galactic created a lottery employees could enter to win a ticket to ride on a test flight on Unity.

269. FE 6 had overall responsibility for Unity's build and maintenance at The Spaceship Company. He was also eligible for the lottery.

270. Because Unity was "poorly built" and was operated by Virgin Galactic, whose employees lacked "attention to detail", FE 6 didn't have "faith" in the structure and was "scared" to ride on it. His response to the lottery was "h*** no."

h. Virgin Galactic's Inspections Were So Bad That Virgin Galactic Employees Did Not Trust Them

271. Virgin Galactic employees described its inspections as "pencil-whipping", a euphemism meaning signing off on inspections that were not conducted properly or at all.

272. FE 1, who headed Virgin Galactic's inspection teams, confirmed that inspectors were "pencil-whipping" inspections.

273. According to FE 1, the problems were structural. First, it is universally accepted in the aerospace industry that inspectors should not report to the production department, or they will face incentives to sign off on inspections to adhere to schedules. But Virgin Galactic did not have dedicated instructors. Instead, before FE 1, and still during her tenure, Virgin Galactic relied on second looks from untrained technicians who worked for production.The technicians were ultimately answerable to the crew chiefs, whose incentives were to push to meet deadlines. There were many consequences. FE 3's crew chief did not want him to fix a potentially lethal crack. FE 1 repeatedly wrote up the same crew chief for signing off on repairs that had never actually been done.

274. Indeed, FE 5 recalls that James Reed, Scaled Composites Director of Production, and Manufacturing Director with The Spaceship Company from September 2010 through the present, had been "pre-stamping" work as completed satisfactorily before it had even been done. When FE 5 raised the issue with a supervisor, the company only addressed the problem "for the most part." Reed still works for Virgin Galactic.

275. Second, the technicians were not certified. Aircraft inspector is not just a job description; it is a career. Aircraft inspectors have the power and responsibility to ground aircraft when the vehicle is not airworthy. That is a serious responsibility, and the FAA treats it as such.

276. While all inspectors are technicians, inspectors have substantial additional training and qualifications. These can include a two- or four-year degree in Aircraft Maintenance Technology and a certification from the FAA. The eligibility requirements for an aircraft inspector certification are important enough that appear in the Code of Federal Regulations, at 14 CFR §65.91(c). An applicant must first have obtained a mechanic's certificate with airframe and powerplant ratings, for which the applicant has passed written, oral, and practical tests. Thereafter, the applicant must obtain three years' experience, including the two years just before the application. Finally, the applicant must pass a written test.

277. Industry requirements are even higher. To obtain an industry certification, applicants must generally obtain work experience as an aircraft inspector, and then pass additional general, specific, and practical examinations.

278. Thus, that Virgin Galactic's inspections were carried out by untrained technicians without FAA-required experience made it very likely that they would miss problems, even obvious ones.

279. Moreover, because Virgin Galactic's vehicles were not meant to be airworthy under FAA regulations, there were not even any standards on which the inspectors could rely. Instead, they had to make the high-stress and high-risk decision to ground the vehicle or allow a flight to proceed based only on their experience, training, and data. This made the job much harder.

280. FE 8 was hired to develop inspection procedures. When FE 8 joined, all of Virgin Galactic's inspection procedures was set out in an 8-page document called Process Specification 100.13 ("PS-13"). PS-13 omitted critical components like "acceptance criteria", i.e. what it takes to ***pass*** the inspection. FE 8 also reports that despite its brevity, the 8-page document was not even streamlined. Instead, it was a "garbage dump" for information.

281. A key component of inspections is a visual inspection, which is exactly what it sounds like: professional inspectors carefully reviewing the vehicle to identify any potential flaws. When FE 1 joined, Virgin Galactic had no trained or dedicated visual inspectors. Instead, mechanics just called a colleague over to inspect their work.

282. Another key component is non-destructive testing. Non-destructive testing means using testing methods that do not destroy or damage the vehicle, such as ultrasound and vibration testing. When FE 1 joined, Virgin Galactic had no trained or dedicated non-destructive testers, either.

283. With no qualified or even dedicated inspectors, Virgin Galactic could not reliably answer critical questions like whether there were internal cracks and how large they were. Aircraft inspectors can use a borescope to examine internal cracks to determine their size. Borescopes are inserted into parts that contain cracks to determine how deep the crack is, where it starts, and where it ends. Borescopes are complex tools that require extensive experience, but FE 8 described the Virgin Galactic technicians who conducted borescope "inspections" as "just a guy with a borescope."

284. According to Mr. Meholic, borescope inspections for cracks are complex and require extensive training. Borescopes are two dimensional representations of a three-dimensional world. What they show requires careful interpretation by a trained individual. For example, what looks like a shadow could also be a crack. That is why professional inspectors, and not technicians moonlighting as such, conduct borescope inspections.

285. According to FE 1, Virgin Galactic also ignored the results of its own inspections. Virgin Galactic used Quality Management System ("QMS") software as a repository of all maintenance-related matters. Defendants attended monthly presentations at which metrics from

QMS were presented, including the number of quality and safety tickets that the technicians or inspectors had issued, and the number of QMS tickets that were currently open, had been opened since the previous presentation, and had been closed.

286. According to FE 1, Logan had been extracting "task tickets" that FE 1 and her group submitted. Logan removed tickets from QMS and placed them in tracking spreadsheets. Logan removed every ticket concerning human factors, such as fatigue, errors, or the like, that had been reported.

287. Once they were placed in the spreadsheets, they were no longer categorized as open tickets and they were not visible from QMS. Instead, they were categorized as closed tickets.

288. After the tickets were moved from QMS to spreadsheets, nothing happened. The tickets were not addressed, and rarely even revisited.

289. FE 1 and her team kept writing up the same safety issues – in some cases, five or six times. They would usually write in the report that they had already reported the matter several times. If the issues had been removed to a tracking spreadsheet initially – which they frequently had – then the issues would not be entered into QMS to begin with.

290. FE 1's efforts to develop an inspection program that would let Unity fly safely were ultimately futile. Indeed, according to FE 1, the problem actually worsened during her tenure as the schedule got busier and busier.

291. The inspections were often pro forma. According to FE 8, certain defects can be discovered by delicately tapping the fuselage and listening to the sound. Though this technique only works with extremely thin layers, measured in thousandths of inches, Virgin Galactic relied on such sound inspections in one-inch-thick sections. Indeed, though tapping inspections require

close listening, FE 8 recalls catching a technician trying to complete one next to an operating power sander.

292. Indeed, according to FE 8, sometimes Virgin Galactic did not even wait for the results of an inspection. One of FE 8's responsibilities was to ensure that new parts were tested before they were installed on Virgin Galactic's vehicles. It might take a week for the inspection results to be generated. Virgin Galactic would install the part on the vehicle before receiving the testing results.

293. And Virgin Galactic ignored its own inspections. According to FE 8, right after a July 2021 flight that took Branson to space, Virgin Galactic's Director of Quality personally spent 27 hours looking for cracks. The cracks the inspection team then uncovered had actually been discovered and documented a long time before, but Virgin Galactic had simply ignored them.

294. Moreover, FE 1 reports that she and her team were tired and overworked just when Virgin Galactic needed them most. FE 1 and her team frequently worked 12-hour shifts for 7 days in a row, particularly in the run-up to test flights. Further, there was no nearby housing because the area around where Unity launched had to be kept clear so that if it exploded, its parts would not kill anyone on the ground. Thus, mechanics typically faced 3 hours of commuting time each day, leaving them with 9 hours to address all other aspects of their lives during these weeks. Under these stressful conditions, according to FE 1, mechanics and inspectors became "frazzled" and liable to make mistakes.

295. Nor did Virgin Galactic conduct adequate destructive testing. According to FE 7, Virgin Galactic is the only company in the industry that does not create spare parts for static testing, validating, and redesigning. Other companies create two or three units of any given part to run through testing and validation. To determine whether a part can withstand stresses, the companies

then run the parts through static testing – essentially tests that try to break the part. Static testing, though, can weaken the part without breaking it, so it is important to run tests on a spare part. To save money, Virgin Galactic would just create one part, test it, and if it did not break, install it. Virgin Galactic thus put people in danger by placing them into a vehicle whose parts may be weaker than they had been when they were passed a stress test.

VI. VIRGIN GALACTIC CLAIMS UNITY NEARS THE END OF ITS TESTING PROGRAM

A. Unity reaches space for the first time

296. During 2018, Virgin Galactic experienced a series of near misses, from the January 2018 glide flight in which Stucky lost control of Unity's horizontal stabilizers, to the October/September 2018 flight in which Unity's parts might have simply fallen off.

297. Even so, Virgin Galactic pressed ahead. In December 2018, Unity reached space for the first time. On that flight, Unity began veering off course after 30 seconds of burn. Because Unity glides to its landing with no rocket power, "veering off course" can easily mean a crash landing. Then, Stucky rolled left to try to level the wings, but instead rolled all the way over, at Mach 2, and kept rolling. As Schmidle wrote, "[t]hey were in unknown, uncharted aerodynamic territory[.]". It was only Stucky's superb piloting that saved Unity from veering off course

298. Unity's next landmark was taking a "passenger" to space. That flight was scheduled for February 22, 2019.

B. "I Don't Know How We Didn't Lose the Vehicle and Kill Three People"

299. On February 22, 2019, Eve took Unity to 45,000 feet, and released it. Unity then turned on its motor and flew to above 50 miles. Unity then glided back down to earth and landed. On board were pilot David Mackay, co-pilot Frederick Sturckow, and Beth Moses, a former NASA

scientist and Virgin Galactic's chief customer trainer,[10] playing the role of a passenger for the flight.

300. According to two separate journalists whose reports largely confirm each other, Unity suffered critical damage to its horizontal stabilizers during the flight. The damage was so significant that Virgin Galactic's head of safety Todd Ericson told Schmidle "***I don't know how we didn't lose the vehicle and kill three people.***"

301. In a February 2, 2021 article, reporter Doug Messier, who publishes the www.parabolicarc.com blog focused on space tourism, quotes a Virgin Galactic insider as stating that Unity's whole horizontal stabilizers ruptured. According to Messier, the cover-up began during the flight. Messier quotes an insider as stating that the pilots "[l]anded long to avoid media cameras"[11] who were there to film the shuttle's arrival.

302. According to Schmidle, when the crew wheeled the shuttle into the hangar, both Stucky and Ericson immediately noticed a large gash running along the trailing edge of the right horizontal stabilizer. In Schmidle's words, when Moses arrived and saw the gap, he "felt his stomach sink."

303. Stucky told Schmiddle "[i]t looked like someone ripped the caulking out of a bathtub." Ericson told Schmiddle "[t]he structural integrity of the entire stabilizer was compromised."

304. Messier's source corroborates Schmidle's account. He quotes the source as saying that Unity's elevons (a portion of horizontal stabilizers) were "[w]ay too damaged to fly again.

[10] Virgin Galactic refers to its customers as "Astronaut". Thus, Ms. Moses's title is "Chief Astronaut Instructor".

[11] Landing long refers to landing either too fast or past the landing spot, such that the shuttle comes to rest further than anticipated. Landing long is dangerous. When the conditions for a long landing appear, commercial airplane pilots often abort the landing entirely, coming up for a second landing.

Whole structure ruptured." Messier quotes the insider as stating that the February 2019 flight was "a close call".

305. According to FE 6, Virgin Galactic was "super lucky". The horizontal stabilizer "popped like a bag of chips", but in the "right spot." Had the horizontal stabilizer "popped like a bag of chips" in a different spot, the crew would have been killed.

C. The February 2019 Incident Reflected A Broader Problem About Its Inspections

306. The February 2019 near-disaster resulted from Virgin Galactic's remarkably poor inspections. According to Schmidle, at some point after December 13, 2018, Virgin Galactic removed a layer of thermal protection from the horizontal stabilizers. Then, after removing the layer, Virgin Galactic re-covered the surface with Kapton. But when applying the Kapton, the technicians had covered the holes on the surface of the horizontal stabilizers designed to vent air. On the ground, the horizontal stabilizers are filled with air. The air must be able to escape before Unity reaches space. In space, the air inside the stabilizers will put pressure on any surface that contains it. With no countervailing pressure from the outside, the air will push on the surface until it finds a weak spot and bursts out. Thus, with the venting holes covered, the air had nowhere to go. It cracked the horizontal stabilizers instead.

307. FE 3 corroborates Schmidle's account. Certain forms of thermal protection, called ablative, absorb heat through phase changes like solid to liquid or chemical reactions. These materials erode each time they are used and must be replaced periodically. Near the end of his tenure, FE 3 recalls a huge engineering order to apply "goop" – an ablative layer of thermal protection – to Unity. After installing the goop, technicians covered it with Kapton. This is the operation Schmidle described.

308. The technicians were supposed to keep track of the goop and Kapton as they mixed and applied it. But according to FE 3, the technicians had had great difficulty keeping track of the goop and Kapton, so much so that they had to just abandon Ultramain and work from pdf drawings.

309. After leaving Virgin Galactic, FE 3 kept in touch with colleagues. FE 3 recalls hearing of the February 2019 near-catastrophe. Like Schmiddle, FE 3 reports hearing from then-current Virgin Galactic employees that it resulted from technicians' inadvertently covering the holes in the horizontal stabilizers when they completed the engineering order. Given the difficulties the technicians had had documenting the completion of the engineering order while he was employed by Virgin Galactic, FE 3 was not surprised to hear that the technicians had not noticed and had not documented that they had covered the horizontal stabilizer's airholes.

310. Covering the horizontal stabilizers with goop was not even the only issue with the horizontal stabilizers on that flight. Schmidle reports that the post-flight inspection also found a bag of loose screws taped inside the horizontal stabilizers.

311. FE 1 corroborates Schmidle's account and adds that the loose screws were there because mechanics were in the middle of installing panels on the horizontal stabilizers when the flight took place. The panels were not completely installed. According to FE 1, some screws were missing, while others were not fully screwed in. Virgin Galactic's February 2019 pre-flight inspection somehow missed that the technicians were in the middle of installing the panels.

312. FE 6 corroborates FE 1's and Schmidle's accounts. According to FE 6, there are a couple of access panels on the horizontal stabilizers that can be opened to get inside the compartment. The access panels had screws on them to hold them together. The screws were put into a parts bag and attached to the access panels when the panels were open. But, according to FE

6, when the technicians who conducted the pre-February 2019 flight could not find the screws, they just got some other fasteners and used them.

313. FE 6 adds that to prevent human error, two employees – usually the Crew Chief and an airframe and powerplant mechanic – conduct independent inspections. The two employees then individually sign the inspection paperwork. The signatures were plainly "rubber-stamped", because the screws were "obvious" and would not have escaped one, let alone two, minimally competent inspections.

314. After the February 2019 near-catastrophe, Ericson told Moses that the Director of Maintenance should be fired; Moses refused.

315. When she heard about the February 2019 flight, FE 1 asked if anyone had been fired. She was told no one had been – not even the two employees who fraudulently signed the inspection paperwork.

D. Virgin Galactic "Brush[es] [the February 2019 Flight] Under the Rug"

316. Virgin Galactic immediately grounded Unity after the nearly disastrous February 2019 flight.

317. But Schmidle reports that the company tried to keep the problem quiet, worried that it might spook the public. As Ericson told Schmidle: "This should have been a come-to-Jesus moment, ***not the kind of thing you brush under the rug.***"

318. Sweeping the problem under the rug was exactly what Virgin Galactic did. Virgin Galactic declared the flight a success. Defendants did not disclose any safety problems, either on the date of the flight or at any time thereafter. In the following days, Defendants would tell the press the flight was an unqualified success. Indeed, Defendant Branson stated in a press advisory:

> Having Beth [Moses] fly in the cabin today, starting to ensure that our customer journey ***is as flawless as the spaceship itself***, brings a huge sense of anticipation and excitement to

> all of us here who are looking forward to experiencing space for ourselves. The next few months promise to the most thrilling yet.

319. Defendant Whitesides told the Associated Press the flight was so successful Virgin Galactic was changing its priority to developing its cabin:

> That's not to say that we are fully done with vehicle testing, but we really are starting to move into the interiors testing phase, and that's a really important milestone for the company.

320. Virgin Galactic never itself disclosed the problems with the February 2019 flight.

321. Meanwhile, according to FE 6, even internally, employees were all "super quiet" about the near catastrophe. Indeed, FE 6 suggested that Virgin Galactic even suppressed discussions of the incident internally.

322. Ericson raised the issue with Virgin Galactic's Board of Directors. In early May 2019, Ericson got an email from a board member. The board member had heard about Ericson's frustrations within the company. The two spoke on the phone and Ericson was promptly invited to and did brief the Board's safety committee. In Schmidle's words, Ericson told the board "that failures in the maintenance organization were making the program unsafe and that if something didn't change someone was going to get killed."

323. Virgin Galactic's Board of Directors commissioned a report from Dennis O'Donoghue, a former Boeing executive. O'Donoghue spent hours interviewing the people responsible for Virgin Galactic's safety, including Stucky, Defendant Moses, and Ericson.

324. Virgin Galactic claimed that it concluded after the O'Donoghue report that Unity was safe to fly, but declined Schmidle's requests to see the report, claiming it was prohibited from doing so by confidentiality agreements. This is a strange response, because the information is Virgin Galactic's, so it has no obligation to another party to keep it confidential.

325. As Schmidle reported in a September 1, 2021 article, Stucky and his team were also never provided with the O'Donoghue Report.

326. On June 10, 2019, upset that Moses was not taking his concerns seriously, Ericson told Whitesides that he was resigning. Schmidle wrote that "Whitesides looked stricken; his vice president of safety was resigning because he'd lost confidence in the safety regime."

327. Defendant Moses later told the Washington Post that after the February 2019 flight, "the company ***immediately notified board members and shareholders*** as well as the FAA and '***kept them apprised regularly of what we were finding, as well as the corrective actions.***'"

VII. INEXPLICABLE DELAYS AND PRESS REPORTS SHOW VIRGIN GALACTIC IS NOWHERE NEAR READY FOR COMMERCIAL FLIGHTS, CAUSING ITS STOCK PRICE TO FALL

A. Virgin Galactic Postpones Commercial Flights To 2021

328. Virgin Galactic announced the de-SPAC transaction in July 2019, and consummated it in October 2019.

329. Unity did not fly during 2019.

330. On the call to discuss Virgin Galactic's Q4 2019 earnings, taking place on February 25, 2020, Defendant Whitesides stated that "[w]e continue to focus on our top priority of the year, which is to fly Richard Branson into space on a commercial flight."

331. After close of trading on August 3, 2020, Virgin Galactic published a press release announcing, and held a call to discuss, its Q2 2020 earnings. In the Press Release, Virgin Galactic announced that Richard Branson's flight would be delayed from 2020 to 2021:

> Virgin Galactic expects to advance to the next phase of its test flight program with its first powered spaceflight from Spaceport America this fall, with two test pilots in the cockpit. Virgin Galactic then expects to conduct a second powered space flight from Spaceport America, with a crew of two test pilots in the cockpit and four mission specialists in the

cabin. Assuming both flights demonstrate the expected results, Virgin Galactic anticipates Sir Richard Branson's flight to occur in the first quarter of 2021.

332. On August 4, 2020, Virgin Galactic's stock price fell from its previous closing price of $24.02 to close at $20.72, down $3.30 (13.7%) on the news.

333. The August 4, 2020 delay was a materialization of the risk concealed by Defendants' fraud, as it resulted from the facts that: (a) Unity needed extensive repairs after damage incurred on the February 2019 flight and others; and (b) Unity shook violently when it reached Mach 2, and Virgin Galactic's solution (a digital horizontal stabilizer control system) had so many problems that it delayed flights.

334. Unity was grounded for 14 months after the February 2019 flight.

335. According to Schmidle, the February 2019 flight irreparably damaged Unity's horizontal stabilizers.

336. According to FE 1, Virgin Galactic had initially tried to build its replacement horizontal stabilizers from carbon composite materials. But it would have taken far too long to complete new carbon composite horizontal stabilizers. So Virgin Galactic hired the National Institute for Aviation Research at Wichita State University to build new aluminum horizontal stabilizers.

337. Schmidle likewise reports that Virgin Galactic hired a firm from Wichita to build new metal horizontal stabilizers.

338. According to FE 8, building horizontal stabilizers out of aluminum rather than composite materials added 120 pounds to Unity, or almost 1% of its existing weight.[12] The added weight necessitated more substantial modifications to Unity.

[12] Virgin Galactic tweeted on December 3, 2020, that Unity weighed 15,800 pounds. https://twitter.com/virgingalactic/status/1334610284984623119

339. Messier reports on the same issues. He quotes an internal source as saying that the failure of the horizontal stabilizers "explains lengthy grounding and then the glide[] [flights] in [New Mexico]." Messier's source states that the broken stabilizer kept Unity grounded for fourteen months, until May 2020.

340. Virgin Galactic also spent time addressing hazards it had known about for years. Unity's top speed of Mach 3 was not its most dangerous speed. According to Mr. Meholic, winged vehicles create shockwaves as they fly through the air at speeds above Mach 1. The shockwaves hit different portions of the vehicle at different angles depending on the air's local speed over the airframe For example, when a vehicle is travelling at Mach 2.3, the shockwave might hit the front of the craft at Mach 2, the wings at Mach 1.7, and the tail at Mach 1.5. Each shockwave creates different pressures and temperatures; the vehicle must withstand them all. Certain combinations of shockwaves can be dangerous for vehicles.

341. So long as the flight conditions and vehicle shape remain the same, the shockwaves will hit the same parts of the airframe with the same force. Thus, if a vehicle experiences certain shockwaves when it flies in 10,000 feet above ground at Mach 2, it will usually experience the same shockwaves in the same conditions.

342. Thus, flying at particular speeds can regularly cause the vehicle to experience some dangerous conditions.

343. For Unity, Mach 1.8 is one of those speeds. According to Schmidle, on the April 2018, flight, when Unity reached 1.8, the pilot Stucky felt the wings tipping. As he strained to keep Unity level, he experienced another, even harder, roll. Though he'd battled internally to burn Unity's rockets for 30 seconds even though others suggested a shorter burn, Stucky was forced to call out "abort, abort, abort!"

344. According to Schmidle, Virgin Galactic then determined that travelling at about Mach 1.8 caused Unity to shake fiercely. To control the vibrations, Virgin Galactic developed a digital control system for its horizontal stabilizers. Virgin Galactic intended that the digital control system automatically control for vibrations, without the pilot's intervention. Virgin Galactic hoped the digital control system would either stop the shaking or make it harmless.

345. While Virgin Galactic had tempted fate four times since the April 2018 flight, with Unity grounded Virgin Galactic decided to install the digital control system.

346. This necessary safety upgrade took a long time to properly install. Digital control systems are not wireless. Instead, digital control systems use wires to transmit instructions to the controlled parts. According to FE 1, the digital control system's wires didn't fit into Unity and couldn't be made to fit Virgin Galactic's initial installation plan. In many instances, this was because engineers did not have accurate engineering drawings of Unity. Engineering would ask technicians to install wires in places that didn't exist, or were configured completely differently than what the engineering order had described. Technicians would report back to Engineering. Engineering would have to start again. So, according to FE 1, fitting them in required months of making and filling holes in Unity to let the wires through.

347. According to FE 1, the digital control system also needed endless adjustments to its telemetry and calibration.

348. According to Mr. Meholic, telemetry refers to transmitting vehicle data. An airplane black box is an example of a telemetry recording device. Flight tests aren't of much use unless the conditions under which the vehicle was flown are recorded, so Virgin Galactic had to fix the digital control systems. Calibration refers to ensuring that measurements matched an objective standard, just as a scale must accurately report weight. Calibration is necessary to ensure

that instruments respond precisely to directions. If the pilot commands the vehicle to roll 2 degrees left, the digital control system must ensure that the vehicle rolls 2 degrees left, not 1 degree or 3. But to do this, the input and feedback sensors in the digital system need to both function correctly (telemetry) and measure properly (calibration) to determine whether a 2 degree input yields a 2 degree response.

349. According to FE 1, with "so many issues with the digital controls," installing the digital control system took month after month after month, delaying Virgin Galactic's flight plans; Virgin Galactic was slowly layering repairs on the digital controls, one issue at a time. The problems were not resolved during FE 1's tenure, which continued to December 2020.

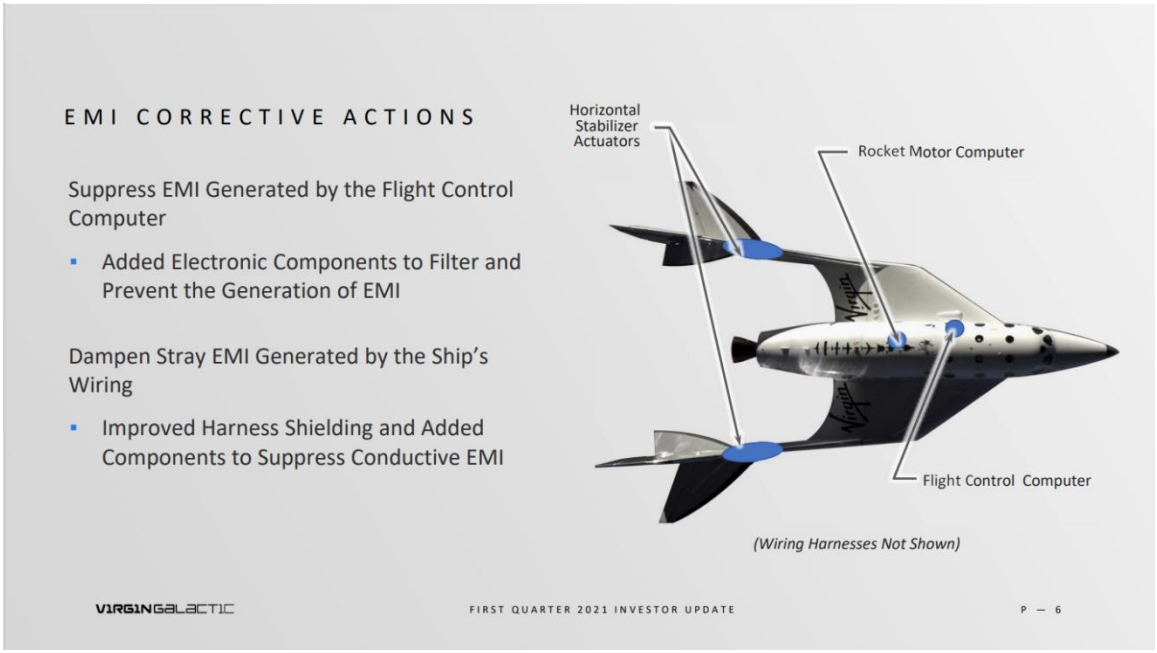
350. Defendant Branson's flight to space was important because it marked the beginning of commercialization. Defendants told investors and the public that Unity's testing program would culminate with a flight that took Defendant Branson to space. Defendant Branson would purportedly test and report on the customer experience. Then, Unity would begin taking paying passengers to space.

351. Thus, Defendants' statements concerning the date of Branson's flights predicted more than when one idiosyncratic billionaire could go to space: they predicted the end of testing and the beginning of commercialization.

352. Unity's undisclosed deficiencies caused the delay and resulting stock drop.

B. Virgin Galactic's First Planned Flight Automatically Aborts Because Its Attempt To Address Safety Concerns It Has Had Since 2018 Created New Problems

353. Virgin Galactic installed the digital control system right next to the computer that controls Unity's rocket motor.



354. Unlike Virgin Galactic's old manual control system, its new horizontal stabilizer digital control system emits electromagnetic radiation.

355. Electromagnetic emissions from one system can interfere with other electronics, called electromagnetic interference ("EMI"). Because the digital control system and rocket motor controller were so close, that EMI could cause the rocket motor controller to lose its connection to the rocket motor. And on the first powered flight after February 2019, that's exactly what happened.

356. Virgin Galactic scheduled its first New Mexico powered flight for December 12, 2020, a Saturday.[13]

[13] Virgin Galactic scrapped an earlier flight date because of COVID restrictions.

357. Virgin Galactic intended the December 12 flight to be the last before Branson's.

358. On December 12, Eve took Unity to about 45,000 feet and released it. Unity's pilot activated its motor. Yet the rocket never started, and the flight automatically aborted. Unity's pilot then glided the shuttle down to landing.

359. Although not disclosed at the time, the new digital control system had emitted EMI, which caused the rocket motor controller to lose connection with the rockets, which in turn automatically shut off the rockets.

360. On Monday December 14, 2020 Virgin Galactic's stock price fell from its previous close of $32.04 to close at $26.47, down $5.57 (17.4%), damaging investors.

C. The Washington Post Reveals that the February 2019 Flight Nearly Ended With Three Deaths

361. Virgin Galactic told the public it was investigating the causes of the aborted December 2020 mission.

362. Virgin Galactic published a December 14, 2020 Press Release stating that it "is now conducting post flight analysis and can so far report that the onboard computer which monitors the propulsion system lost connection, triggering a fail-safe scenario that intentionally halted ignition of the rocket motor."

363. On February 1, 2021, before trading began, Virgin Galactic announced that it aimed to fly Unity that February and had secured a launch window beginning February 13:

Flight Window Opens on February 13

> Virgin Galactic today announced the date of its new flight window for a rocket-powered test flight of its SpaceShipTwo Unity.
>
> The flight window will open on February 13 with opportunities to fly throughout February, pending good weather conditions and technical readiness. The test flight will

be crewed by two pilots and will carry research payloads as part of the NASA Flight Opportunities program.

Pre-flight preparations are already underway at Spaceport America, New Mexico, including rigorous steps to prepare the vehicles, pilots, teams and facilities, with safety procedures as a top priority. In addition, the Virgin Galactic Pilot Corps has completed two flights with its mothership, VMS Eve, for routine pilot proficiency training. This training included using the mothership to simulate the glide and approach-to-land phase of flight for SpaceShipTwo, showing the versatility of VMS Eve as more than just a mothership.

A key objective of the upcoming flight will be to test the remedial work that has been completed since the December 12, 2020 flight when the onboard computer halted ignition of the rocket motor. The team has since conducted the root cause analysis, completed the corrective work required, and carried out extensive ground testing. The next stage will be to assess and verify this work during a rocket-powered flight.

The flight will incorporate all of the original test objectives from the previous test flight, including evaluating elements of the customer cabin, testing the live stream capability from the spaceship to the ground, and assessing the upgraded horizontal stabilizers and flight controls during the boost phase of the flight.

364. Defendants' statements assured investors that Virgin Galactic had addressed the root cause of the December 12 flight's failure. On February 1, Virgin Galactic's stock price soared from its previous close of $44.29 to close at $53.79, up $9.50 (21.4%).

365. Then, after close of trading, the Washington Post published an article disclosing that the February 2019 flight had nearly ended in three deaths.

Richard Branson's Virgin Galactic had just had its second successful flight to the edge of space, a daring mission that it said put it one step closer to finally flying tourists and making it the "world's first commercial spaceline."

But when the ground crew wheeled the suborbital spacecraft back into the hangar, company officials discovered that a seal running along a stabilizer on the wing designed to keep the space plane flying straight had come undone — a potentially serious safety hazard.

"The structural integrity of the entire stabilizer was compromised," Todd Ericson, a test pilot who also served as a vice president for safety and test, said, according to a soon-to-be-published book. ***"I don't know how we didn't lose the vehicle and kill three people."***

This previously unreported account of the flight in February 2019 is contained in "Test Gods: Virgin Galactic and the Making of a Modern Astronaut" by New Yorker magazine journalist Nicholas Schmidle, who spent almost four years embedded with the company.

* * * * *

In the book, Schmidle wrote that the "seal had disbonded on the way up, as the pressure increased with nowhere to vent," ultimately leaving a "wide gap running along the trailing edge of the right h-stab," or horizontal stabilizer. When Mike Moses, Virgin Galactic's president, missions and safety, saw the gap, "he felt his stomach drop," Schmidle reported. Moses's wife, Beth Moses, Virgin's chief astronaut instructor, had been on the flight.

After the flight, the company hired an outside aviation expert, Dennis O'Donoghue, to conduct a safety review of the program, and he spent weeks interviewing company officials and poring over records, according to the book. After a month, O'Donoghue, who had served as a test pilot in the Marine Corps and at NASA and also had worked at Boeing, submitted his report. The company, which has signed up more than 600 people for flights that cost as much as $250,000, has refused to make it public.

Virgin Galactic "tried to keep the h-stab problem quiet, worried that it might spook customers," Schmidle wrote. That stance concerned Ericson, a former military test pilot who had served as the safety chief at the Air Force Test Flight Center before coming to Virgin Galactic in December 2014, according to his LinkedIn profile.

"This should have been a Come-to-Jesus Moment, not the kind of thing you brush under the rug," Ericson said, according to the book. Ericson informed the company in June 2019 that he was stepping down as vice president of safety, which concerned George Whitesides, then the company's CEO, who Schmidle wrote was suddenly faced with the prospect that "his vice president of safety was resigning because he'd lost confidence in the safety regime."

* * * * *

[In an interview on February 1, Defendant Moses] said the problem occurred when thermal protection coating was applied incorrectly and ended up blocking vents intended to allow air inside the stabilizer to escape as the atmospheric pressure decreased outside the craft as it flew higher.

"The design of the h-stab wasn't really an issue there," Moses said. "It was an error that occurred in processing on the ground. ***Clearly a problem, right? Not something that should be allowed to happen and something we clearly needed to address."***

* * * * *

> ***At the moment the problem was discovered the teams were concerned, even emotional. "The reaction is, 'Wow, what was that? How could that happen?'"*** he said. But investigating the issue and finding the problem "gives us pretty high confidence in our design and our performance on the changes we made since," he said.
>
> * * * * *
>
> But after the 2019 flight, Schmidle reported that Ericson "had concluded that members of the maintenance team were 'pencil whipping' inspections — signing for inspections that were not conducted properly." The inspectors, Schmidle wrote, not only failed to notice that the vents were blocked, causing the seal on the stabilizer to rupture, "but also missed a bag of screws taped to the inside of the h-stab."
>
> He recommended firing the head of maintenance, but Moses refused.
>
> After the February 2019 flight, Virgin Galactic grounded the vehicle and began redesigning the stabilizer and hired a contractor to "build a new one from scratch, out of metal," Schmidle reported, instead of the composite carbon fiber used previously.

366. On February 2, 2021, Virgin Galactic's stock price fell immediately upon opening. By the close of the session, it had fallen to $48.58, down $5.21 (9.6%) from its previous close of $53.79, damaging investors.

367. In his February 2, 2021, article, Messier reported that "Virgin Galactic declined to comment on why the damaged elevons were not disclosed to investors before Virgin Galactic merged with Social Capital Hedosophia and went public on the New York Stock Exchange[.]"

368. The day was not yet over. On the evening of February 2, 2021, SpaceX's rocket exploded.

369. SpaceX is a privately held company that, like Virgin Galactic, offers tourists the opportunity to fly to space. But SpaceX is far more advanced, and SpaceX's offerings are superior. For example, SpaceX has flown four customers to space for one day, rather than 3 minutes, and plans to fly four customers to the International Space Station in early 2022. More, funded by Elon

Musk, at the time the world's second richest person (now first), SpaceX's resources dwarf Virgin Galactic's.

370. As of today, SpaceX's offerings are at a much higher price point. For example, the four customers who will be staying on the International Space Station paid $55 million.

371. Yet SpaceX is testing rockets that could power a 100-person shuttle to space, the Starship. According to SpaceX founder Elon Musk, the cost for one Starship flight may eventually reach $2 million, letting SpaceX offer flights at a fraction of Virgin Galactic's prices.

372. SpaceX began testing the first Starship-capable rocket in October 2020. The rocket performed its first flight on December 9, 2020. It exploded on landing. But the flight was generally considered a success because every part of the flight was technically perfect except its landing.

373. On February 2, 2021, SpaceX test flew another Starship-capable rocket. Because of the very same flaw, this new rocket also exploded on impact. Making the same fatal mistake twice in a row made the flight a failure. As SpaceX's announcer sheepishly observed on the flight's livestream, SpaceX "just got to work on that landing a little bit."

374. Thus, after February 2, it appeared to investors that Virgin Galactic had a head start against any attempt by SpaceX to use the Starship rocket to power tourist spaceflight.

375. Virgin Galactic opened on February 3, 2021, at $49.98, and immediately soared. By 11:00, it reached $58, and stayed at roughly that level for the rest of the day. Its stock price closed at $57.12. Thus, Virgin Galactic's stock price recovered from its February 2 fall on February 3 for reasons completely unrelated to its fraud.

D. Virgin Galactic Cancels Another Test Flight Because It Still Hasn't Fixed EMI and A New Inspection Uncovers Catastrophic Risks

376. On February 12, Virgin Galactic announced through its twitter account:

> Flight test update: We have been progressing through our pre-flight preparations and, during that process, we have decided to allow more time for technical checks. We are working to identify the next flight opportunity.

377. On February 25, 2021, Virgin Galactic issued a Press Release and held a call to discuss its Q4 2020 earnings. During the call, Defendant Moses explained that Virgin Galactic would not be able to fly Unity in February because the issues with the flight control computer that controlled the horizontal stabilizers persisted:

> [I]n January, we proceeded with modifications that were designed to lower the EMI levels and better protect certain systems. After confirming through testing that these corrective actions would prevent a reboot of the rocket motor computer, we determined that we were ready to target a February launch. As we completed our pre-flight technical readiness checks for that February flight, some of our shipboard sensor readings showed fluctuations, and it became apparent that those changes that we had made to address EMI had unintentionally created additional noise within our sensor environment.

378. Defendants did not provide a firm deadline to resume flights, but guided to sometime in May:

> **Defendant Colglazier**: Once this EMI issue is addressed to our satisfaction, we intend to return to the test flight program sequence that we previously communicated. Our estimate to complete this work is eight weeks to nine weeks, which suggests our next test flight will be in May.

379. Analysts were surprised by the delay:

> <analyst>: I guess maybe if I push out a little bit more, I mean, how much of [a] window do we have? I mean, this is a pretty big slip. If you have another one, you could push it out two years, maybe, how long do we have?

380. Yet Unity could not have flown in February even if Virgin Galactic had fully addressed the electromagnetic interference problem. Messier's February 2 article quotes his source as saying that Unity had "serious structure problems now appearing, including composite structure coming apart. Adding bolts to try to hold things together." Likewise, FE 8 reports that the February flight was delayed because an inspection found serious problems that required repairs and modifications.

381. Thus, the revelations on February 26 resulted from the same undisclosed hazards which had caused earlier price declines. First, Virgin Galactic still hadn't addressed the problems with its digital control system. Second, Virgin Galactic's aging, poorly maintained vehicles were disasters waiting to happen.

382. On February 26, Virgin Galactic's stock price fell from its previous close of $42.24 to close at $37.23, down $5.01 (11.8%), damaging investors.

E. Branson Sells $480.4 Million in Stock While Concealing That A Flight He Flew On Nearly Had to Crash Land

383. Virgin Galactic had three flights on its schedule for the summer of 2021. The first flight, scheduled for May, was the re-scheduled December 2020 test flight. The second would take Branson to space. The third, whose cancellation later caused Virgin Galactic's stock price to fall, would take Italian air force personnel to space.

384. On May 22, 2021, Virgin Galactic conducted its first powered flight – and its first spaceflight – since its disastrous February 2019 flight.

385. On June 6, 2021, Virgin Galactic competitor Blue Origin announced that it would take its founder and funder billionaire Jeff Bezos to space on July 20, 2021. Like Elon Musk, Bezos's fortune dwarfed Branson's.

386. Then, on July 1, 2021, Virgin Galactic announced that it would take Branson to space on July 11, nine days before Bezos's flight.

387. On July 11, Eve carried Unity to 45,000 feet, with Branson aboard, and released it. Unity turned on its motor and soared to 50 miles above Earth's surface. Defendants declared the flight a complete success.

388. It took little time for both Virgin Galactic and Defendant Branson to cash in.

389. Between July 12 and 16, 2021, Virgin Galactic sold $500.0 million of shares in open market transactions.

390. From August 10 through August 12, Branson sold 10.4 million shares for $300.9 million. Branson sold every share he was entitled to sell; his remaining shares were subject to a lockup agreement.

391. Yet even as they sold more than $980 million of stock in August, Defendants knew material nonpublic information: Branson's flight had dangerously strayed from its landing cone, thus imperiling the lives of its passengers.

392. Unity does not use any of its fuel to position itself for landing. Rather, it burns all its fuel to reach 50 miles above the Earth's surface. After it reaches its apogee, its highest point, it glides to a landing using only its own momentum and steering instruments.

393. To land Unity safely, pilots must aim for an imaginary inverted vertical landing cone. Unity "enters" the cone when dropped by Eve and must stay within the cone during the entire flight. The cone then gradually narrows until Unity reaches the landing strip.

394. Deviating from the cone is dangerous, because the vehicle may not have enough energy to make it back to the landing strip. Unity would then have to land somewhere else; a crash landing would imperil all aboard. As Schmidle explained in a September 1, 2021 *New Yorker* article about the July 11 flight, a yellow cockpit warning light indicates to the pilots that Unity is about to leave the cone; a red warning light indicates that it has left the cone.

395. Virgin Galactic's world-class test pilots – who take on extraordinary risks every flight – are petrified of leaving the cone.

396. As Schmidle continued in the September 1 New Yorker article:

> I once sat in on a meeting, in 2015, during which the pilots [who would later pilot] the July 11th [2021] mission—Dave Mackay, a former Virgin Atlantic pilot and

> veteran of the U.K.'s Royal Air Force, and Mike Masucci, a retired Air Force pilot—and others discussed procedures for responding to an entry glide-cone warning. C. J. Sturckow, a former marine and NASA astronaut, said that a yellow light should "scare the s*** out of you," because "when it turns red it's gonna be too late"; Masucci was less concerned about the yellow light but said, "Red should scare the cr*p out of you."

397. According to Schmidle, on the July 11 flight, when Unity had reached 20 miles (about 30 miles short of its apogee), the yellow light turned on in Unity's cockpit indicating that it was straying from the glide cone. Five to seven seconds before the end of Unity's burn, it was joined by the red one, indicating that it had strayed from the landing cone.

398. The straying also brought Virgin Galactic into conflict with the FAA. The FAA has enacted *some* regulations concerning spaceflight. But the FAA is prohibited by statute from considering the lives of those inside the shuttle. Instead, the FAA imposes regulations to limit the risk imposed by Unity on people who are not inside Unity. This includes ensuring that the risk that an exploding shuttle's parts will kill people on the ground is sufficiently low. It also includes ensuring that the shuttle does not stray from the airspace that has been set aside for its flight.

399. The pilots were eventually able to bring Unity back into its glide cone. But Virgin Galactic acknowledged in response to questions from Schmidle that Unity stayed outside of its FAA airspace for 1 minute 41 seconds, or more than 10% of the journey.

400. Virgin Galactic withheld the fact that it had strayed from its airspace from the public and, initially, even from the FAA. Moreover, though Virgin Galactic falsely told investors the FAA's investigation began on August 11, or after Branson's stock sales had begun,[14] the FAA

[14] https://www.virgingalactic.com/articles/virgin-galactic-cleared-to-fly-following-conclusion-of-faa-inquiry/

told the Washington Post its investigation began on July 23, before Branson started selling its stock.[15]

401. In a September 16 report, a Bank of America analyst castigated Virgin Galactic for its conduct. The analyst reported that "[s]elective disclosure can be a culture red flag."

402. The analysts called Virgin Galactic's decision "to have an event that, per FAA regulations, is considered a mishap[16] and then claim that the mission was a full success" is "[p]oint blank [] unacceptable."

403. The analyst even suggested that Virgin Galactic's assurances that the incident was not dangerous may be lies:

> [Virgin Galactic] insists the deviation was a result of high winds (as opposed to operator error or technical failure) and that at no time were its passengers/crew in danger. We wonder then, why not disclose in a clear and timely fashion?

404. Stucky also said Virgin Galactic's explanation was misleading. As he tweeted: "The most misleading statement today was @virgingalactic's. The facts are the pilots failed to trim to achieve the proper pitch rate, the winds were well within limit, they did nothing of substance to address the trajectory error, & entered Class A airspace without authorization." He added "but if that's their definition of proper procedures and safety being paramount, well there you have it."

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[15] https://www.washingtonpost.com/business/houston-virgin-galactic-has-a-communication-problem/2021/09/08/32a82bce-1073-11ec-baca-86b144fc8a2d_story.html

[16] "Mishap" describes a serious incident that did not result in an accident. It is defined as "a launch or reentry accident, launch or reentry incident, launch site accident, failure to complete a launch or reentry as planned, or an unplanned event or series of events resulting in a fatality or serious injury (as defined in 49 CFR 830.2), or resulting in greater than $25,000 worth of damage to a payload, a launch or reentry vehicle, a launch or reentry support facility or government property located on the launch or reentry site." 14 C.F.R. § 401.5. A reentry incident is defined as "any unplanned event occurring during the reentry of a reentry vehicle, other than a reentry accident, involving a malfunction of a reentry safety-critical system or failure of the licensee's or permittee's safety organization, procedures, or operations." 14 C.F.R. § 401.5

405. Virgin Galactic triumphantly announced on September 16, 2021 that it had resolved the FAA's concerns. Virgin Galactic omitted to disclose that it only needed to address the FAA's concerns of the risks to the outside public. Whether the shuttle's pilots and passengers died in a fiery crash was, by Congressional design, none of the FAA's concern.

406. Thus, Defendants sold more than $980 million of shares in early August 2021 while in possession of material nonpublic information.

407. Schmidle's article was published after close of trading on September 1, 2021. Schmidle's article cited ***eight*** people familiar with the Unity program, suggesting Virgin Galactic employees were terrified of the risk of catastrophe.

408. At 1:35 PM on September 2, 2021, the FAA announced that it was grounding Unity. Within minutes of the FAA's announcement, Virgin Galactic's stock price fell from about $28 to about $25.

409. The FAA grounded Unity because it had dangerously strayed from its airspace during the flight that took Defendant Branson to space.

F. Virgin Galactic Cancels a Flight Based on Safety Issues It Had Known About Well Before the Class Period Even Began

410. On October 14, 2021, Virgin Galactic published a press release announcing that it would delay the Italian air force flight until at least Q4 2022:

> The enhancement program is designed to improve vehicle performance and flight-rate capability for VMS Eve and VSS Unity. In preparation for this work, Virgin Galactic has been performing routine tests and analyses to update its material properties database. This data predicts how materials are expected to perform under certain load and environmental conditions and is used to inform the design and manufacturing enhancements that will support increased flight frequency. ***One of these recent laboratory-based tests flagged a possible reduction in the strength margins of certain materials used to modify specific joints, and this requires further physical inspection.***

> As is standard in aerospace test and evaluation practices, Virgin Galactic ships are designed to withstand forces that are substantially higher than those experienced in regular use, providing additional margin and layers of safety. The enhancement program is designed to further increase margins that will enable improved reliability, durability and reduced maintenance requirements when in commercial service. While this new lab test data has had no impact on the vehicles, our test flight protocols have clearly defined strength margins, and further analysis will assess whether any additional work is required to keep them at or above established levels. Given the time required for this effort, the Company has determined the most efficient and expedient path to commercial service is to complete this work now in parallel with the planned enhancement program.

411. On October 15, 2021, the price of Virgin Galactic shares fell from its previous close of $24.06 to close at $20.01, down $4.05 (16.9%).

412. On a November 8, 2021 call to discuss Q3 2021 earnings, Defendants explained the parts responsible for the delay: Eve needed extensive maintenance, including to its defective launch pylons and horizontal stabilizers.

413. Defendants had known of, but concealed, the risk since 2018.

414. Since May 2021, Virgin Galactic had touted its three-flight plan for 2021. The plan called for a test flight in May, followed by a full-passenger flight, including Branson, sometime in the summer. The third flight would take paying members of the Italian air force for astronaut training.

415. On takeoff, Unity is attached to Eve with pylons that support Unity's weight. When Eve reaches the designated altitude, it releases Unity from the pylons, which then falls so it can use its own rocket to reach space. According to FE 3, there were two pylons in the front and one in the back. The pylons were "just slapped together and not as strong as they were supposed to be." According to FE 3, even Virgin Galactic recognized that the pylons were a hazard. If Eve lost an engine, Unity could inadvertently disconnect from Eve, likely ending in catastrophe. If it happened on takeoff, everyone on board would likely be killed. Virgin Galactic was struggling to design and build a new pylon configuration.

416. FE 1 and FE 7 both likewise report that the pylons cracked after every flight.

417. The pylons were always a problem. According to FE 8, the pylon had been poorly manufactured, raising "monster" issues.

418. Pylons were not Eve's only issues. Like Unity, Eve has horizontal stabilizers. Like Unity's, Eve's horizontal stabilizers are also structurally compromised. According to FE 8, Eve's horizontal stabilizers had "a lot of issues", including even cracking in the bonds.

419. At the end of 2020, Virgin Galactic attempted to rebuild Eve's horizontal stabilizers. There was much more work than anticipated; Virgin Galactic had to cut off and replace the horizontal stabilizers' entire tails.

420. Like its pylons, Eve's horizontal stabilizers were a well-known problem inside Virgin Galactic. According to FE 8, the cracks its Director of Quality had spent 27 hours trying to find, *see* ¶293, were located in Eve's horizontal stabilizers.

421. Messier corroborates FE 7, FE 8, and FE 3's accounts that the issues were well-known. His February 2 article quotes a source as saying that Eve had serious problems, including that its "[l]aunch pylon is falling apart" in part because Unity is "[w]ay heavier than [Eve] was designed for."

422. Thus, Defendants' false statements about Unity's safety, among others, concealed the risk of delays pertaining to Eve that they had known about since 2018, which materialized on October 14.

VIII. ADDITIONAL FACTS FURTHER PROBATIVE OF SCIENTER

A. Branson Needs to Take Virgin Galactic Public To Save Virgin Atlantic and the Rest of His Empire

423. Richard Branson founded Virgin Atlantic in 1984. It is the crown jewel of his empire. In a December 1, 2019 letter, Branson claimed "I have always viewed Virgin Atlantic as one of my children."[17]

424. Virgin Atlantic was his first airline. Branson would go on to found several more airlines, and in each case disposed of most of his shares. But while Branson later sold ***part*** of Virgin Atlantic to Delta, he kept 51% of Virgin Atlantic's shares for himself, thus ensuring control.

425. In May 2017, Branson agreed in principle to sell 31% of Virgin Atlantic to Air France-KLM for about $282 million. Branson would thus lose control over Virgin Atlantic. In the December 2019 letter, Branson stated that he only reached the agreement "reluctantly."

426. Branson agreed to the terms because he was cash poor. As Branson himself would later claim in seeking a government bailout from the UK, that "[o]ver the years significant profits have never been taken out of the Virgin Group, instead they have been reinvested in building businesses that create value and opportunities." Answering the obvious objection – why should a government bail out a billionaire? – he explained "I've seen lots of comments about my net worth – but that is calculated on the value of Virgin businesses around the world before this crisis, not sitting as cash in a bank account ready to withdraw."

427. As of May 2017, most of Branson's companies were private, meaning that he could not easily sell their shares to meet his pressing needs for cash.

[17] https://www.virgin.com/branson-family/richard-branson-blog/letter-virgin-atlantic-employees

428. The agreement with Air France-KLM would be held up for years by an antitrust review.

429. Taking Virgin Galactic public offered Branson a way out of having to give up control over Virgin Atlantic.

430. Virgin Galactic began exploring a merger with Social Capital at an October 17, 2018 meeting between a Virgin director and an employee of Social Capital's investment advisor. After the meeting, Defendant Palihapitiya authorized the banker to proceed with discussions. After a flurry of meetings, on January 24, 2019, Social Capital sent Virgin Galactic an initial non-binding letter of intent. In the letter, Social Capital proposed to acquire portions of Virgin Galactic and its Branson-owned sister company, Virgin Orbit, which sends satellites to space. Social Capital suggested an initial valuation of the two companies combined of $1.5 billion to begin negotiations.

431. After repeated discussions with Virgin Galactic, on February 5, 2019, Social Capital provided an amended valuation of $2.0 billion, but also included a crucial new term: Virgin Galactic would purchase up to $100 million of shares held by a company 80.7% owned by Branson, Vieco 10 Ltd. ("V10") in the de-SPAC transaction ("Branson Side Purchase"). Branson would thereby withdraw $80.7 million in cash from Virgin Galactic. In successive versions of the transaction documentation, the amount of the Branson Side Purchase would only increase.

432. After further discussions with Virgin Galactic, Social Capital agreed to limit discussions to Virgin Galactic, leaving Virgin Orbit as a side business. On March 2, 2019, Social Capital provided another letter of intent. In this letter, Social Capital valued Virgin Galactic at $850 million. Yet, at the same time, Social Capital agreed to increase the amount of the Branson Side Purchase to up to $150 million, or more than one sixth of the business's total value. In a

revised April 3, 2019[18] letter of intent, Social Capital increased Virgin Galactic's valuation to $1.3 billion, and also increased the Branson Side Purchase to up to $200 million.

433. But Branson wanted to sell even more shares. So he proposed an additional term which required Palihapitiya to purchase an additional $100 million of V10's shares on top of the Branson Side Purchase. The amendment did not change the valuation of Virgin Galactic, it only meant that Branson made more money from selling shares.

434. The parties continued to negotiate other terms and, on July 9, 2019, executed an agreement which valued Virgin Galactic at $1.3 billion and provided that V10 would sell up to $200 million of its Virgin Galactic shares to Virgin Galactic and would sell $100 million of its Virgin Galactic shares to Palihapitiya.

435. Branson could not exercise the Branson Side Purchase in full. The SPAC's terms allowed shareholders to tender their Social Capital shares for about $10 each. To ensure Virgin Galactic had enough cash after the de-SPAC transaction, the Branson Side Purchase required Virgin Galactic to still have $500 million after its exercise. If too many shareholders tendered their shares, then Branson could not exercise the Brandon Side Purchase in full.

436. In the end, shareholders holding $159.8 million of Social Capital stock tendered their shares. This was too many. It left only about $52.1 million to purchase V10 shares. Thus, after including Defendant Palihapitiya's share purchases, Defendant Branson was only able to wring $152.1 million from Virgin Galactic's de-SPAC transaction, leaving Social Capital's trust fund with exactly $500 million, before expenses.

437. Yet it was enough for Branson to keep his controlling interest in Virgin Atlantic, particularly as Branson could now sell Virgin Galactic stock on the open market when he needed

[18] Social Capital had offered another letter of intent on March 5, 2019.

more cash. A month after the de-SPAC transaction closed, Branson published the December letter to explain that he would no longer sell any Virgin Atlantic shares to Air France-KLM. By pushing through the Virgin Galactic de-SPAC transaction, Branson kept his majority control over Virgin Atlantic.

438. COVID-19 worsened Branson's already-tenuous financial position. In April 2020, Branson began publicly lobbying governments for bailouts. In an open letter purportedly addressed to employees, Branson requested that the UK Government bail out Virgin Atlantic. Branson also unsuccessfully sought a bailout from the Australian government for Virgin Australia.

439. Virgin Atlantic's condition worsened. It reported that Q1 2021 passenger numbers had fallen 80% against Q1 2020. The company had suffered a substantial pre-tax loss.

440. To save his collapsing empire, Branson sold every Virgin Galactic share he was allowed to sell during the Class Period:

a. On May 14-22, 2020 V10 sold 23.7 million shares for total proceeds of $358.8 million;

b. On June 2, 2020, V10 sold 12. 5 million Virgin Galactic shares for total proceeds of $188.3 million;

c. V10 then dissolved and distributed all its Virgin Galactic shares to its shareholders in proportion to their shareholdings of V10;

d. From April 12 through 14, 2021, Branson sold 5.584 million shares for total proceeds of $150.3 million;

e. On August 10-12, Branson sold 10.4 million shares for total proceeds of $299.9 million.

441. V10 had agreed to a two-year lockup that prevented it from selling more than 50% of the Virgin Galactic shares it received in connection with the de-SPAC transaction (after giving effect to the sale of $152.1 million of shares in the de-SPAC transaction). When V10 dissolved, it distributed proportionate shares of locked up and sellable shares to its shareholders.

442. With his 80.7% share of V10, Branson had to keep at least 46.3 million shares. With the August sales, Branson's stake fell to just those 46.3 million locked up shares. Thus, Branson sold every single share he could in the de-SPAC transaction, and then sold every single share he could after the de-SPAC transaction.

443. The Virgin Galactic stock Branson sold also accounted for a substantial portion of his net worth. In July 2021, Forbes estimated Branson's fortune at $5.7 billion. Branson's share of the V10 sales was $441.5 million, and his personal sales totaled $450.2 million, for total proceeds of $891.7 million. His Virgin Galactic sales represented more than 15% of his wealth.

B. Virgin Galactic Sold More than $1 Billion of its Shares During the Class Period

444. Virgin Galactic ended 2018 with annual revenues of $2.8 million, annual expenses of $139 million, and $74.0 million in cash. Virgin Galactic urgently needed another cash infusion and had no realistic option other than the SPAC.

445. Like Branson, Virgin Galactic sold eye-watering amounts of its stock during the Class Period:

a. On August 5, 2020, Virgin Galactic sold 23,600,000 shares of stock at $19.50 each for total proceeds of $460.2 million.

b. Between July 12 and July 16, 2021, Virgin Galactic sold 13,740,433 shares in an at-the-market offering for total proceeds of $500 million.

C. Palihapitiya Needed the Virgin Galactic De-SPAC Transaction to Close To Prevent It and His Four Other SPACs From Failing

446. In 2011, Palihapitiya founded a venture capital fund he called Social Capital ("Social Capital Fund") alongside co-founders Mamoon Hamid and Ted Maidenberg.

447. According to a September 7, 2018 Axios article titled *What went wrong at Social Capital*, in 2017, Social Capital Fund began a collapse that would end with the fund's effective termination.

448. In August 2017, Hamid, whom many investors viewed as Social Capital Fund's "top rainmaker", left to join a competitor. Maidenberg followed soon after.

449. Palihapitiya soon replaced most of Social Capital Fund's top leadership.

450. Palihapitiya soon began showing up less often to the office. Not having been told the reason for his absences, many employees speculated that he was spending time in Europe with his girlfriend. Axios reported, in addition:

- Multiple sources say that he repeatedly didn't appear for investor meetings, sending his regrets shortly before they were to begin.
- He is said to have promised to spend significant time in London with hedge fund manager Carl Anderson, who had relocated there with his family at Palihapitiya's request, but rarely showed.
- Current and former Social Capital employees say it could take days or weeks to get email replies from Palihapitiya.

451. In June 2018, senior management left *en masse*, including many of the executives Palihapitiya had installed after Hamid and Maidenberg's departures.

452. Shortly thereafter, Palihapitiya began winding down Social Capital Fund.

453. According to a September 21, 2018 Axios article titled *Chamath Palihapitiya burns down what he built*, Palihapitiya essentially turned Social Capital Fund into a family office that almost entirely only invests his own money.

454. In an interview published by The Information on September 20 2018, Palihapitiya was quoted as saying, among other things:

- I would rather spend time with the people that are 100% aligned with what I want to do and the person that's most aligned with what I want to do is me.

- [Investors] probably felt maybe not listened to as much as they should have been by me. Tough.

455. The Information also paraphrased a Palihapitiya statement: "When asked what kind of feedback he received after informing investors, Mr. Palihapitiya said if there were responses, he didn't even look at them."

456. With his professional life in tatters, Palihapitiya pivoted to SPACs. Palihapitiya began what he hoped would be a long list of SPACs. His SPACs would trade under tickers IPO followed by a letter; he reserved the ticker symbols IPOA through IPOZ. As reported in a September 26, 2020 article, he told Fortune Magazine SPACs would be "a repeat thing that we do over and over again." Palihapitiya added that because venture capital firms "are kind of short-term focused, mostly stupid, [and] pretty arrogant", they would leave the field of SPACs to him until, with no other option, "they'll capitulate like every bozo that's late to a party":

> Q: Why do you think major capital firms didn't jump on board the SPAC train?
> ***Defendant Palihapitiya***: I think VCs are kind of short-term focused, mostly stupid, pretty arrogant, and I don't think I'm their best friend because I kind of speak the truth in a way that makes them uncomfortable. So I think they'll hold off as long as they can with anointing us as a winner – until they realize they need to raise more capital to create returns in their fund, and then they'll capitulate like every bozo that's late to a party. In the meantime, the founders who have control over their companies can do anything they want, regardless of what the VCs say. So we work with them. But will all VCs eventually capitulate and do it? I think so.

457. Palihapitiya added that his ambition was "to be our generation's Berkshire Hathaway".

458. Social Capital, with ticker symbol IPOA, was Palihapitiya's first SPAC. As the clock ticked to September 18, 2019, Social Capital's dissolution date, Palihapitiya had just one potential partner with whom discussions were far along enough to succeed: Virgin Galactic. Having invested his money, time, and self-image in SPACs, Palihapitiya had to push the Virgin Galactic de-SPAC transaction through.

459. IPOA's terms provided that if a de-SPAC transaction closed, the SPAC's sponsors would receive 20% of the SPAC's shares in the new company at no cost to the sponsors. For example, if Virgin Galactic's former shareholders held 75% of the new public company, then the sponsors would be awarded 5%, and the remaining 20% would be held by the SPAC's former shareholders (including the SPAC's sponsors to the extent they purchased SPAC shares outright). If the de-SPAC transaction did not go through, then the sponsors would not be awarded any additional shares. The fund would return the money to its investors, and the SPAC's owners would only receive amounts proportional to the amount they had actually invested. Thus, to make any money, Defendant Palihapitiya had to close the SPAC transaction.

460. But far worse, Social Capital was Palihapitiya's very first SPAC. If it failed, he would have a hard time convincing investors to invest more money or private companies to partner with him.

461. Thus, the de-SPAC transaction was an agreement between three desperate parties: Virgin Galactic, which urgently needed funds to stave off a collapse, and whose principal investors Richard Branson urgently needed cash, and Defendant Palihapitiya, who stood to lose two years' efforts and his dreams of creating a SPAC Berkshire Hathaway.

462. During the Class Period, Palihapitiya disposed of every Virgin Galactic share he personally held:

c. On December 14 and 15, 2020, Palihapitya sold 3.8 million personally-held shares for total proceeds of $97.8 million; and

d. On March 2 and 3, 2021, Palihapitya sold his remaining 6.2 million personally-held shares for total proceeds of $212.8 million.

D. Virgin Galactic Is A Small Company and Whitesides and Moses Worked There For More than a Decade

463. Defendants Moses and Whitesides joined Virgin Galactic in its infancy. Whitesides joined in 2010, and Moses in 2011.

464. At that time, Virgin Galactic was a tiny company. When Whitesides joined, it had only 30 employees. While it hired more employees over time, as of June 30, 2019, it still had only 669.

465. Until at least 2019, Whitesides and Moses worked out of Virgin Galactic's headquarters in the Mojave Air & Space Port in Mojave, California.

466. Virgin Galactic's Mojave Desert offices were very small. While Virgin Galactic boasts that its campus has over 200,000 square feet, the majority consists of outdoor parking/storage space.

467. According to FE 7, Virgin Galactic principally worked out of two buildings. Exhibits to Virgin Galactic's October 10, 2019 proxy show these buildings are Building 79B, with 26,955 square feet of building space, and Building 79 West, with approximately 48,000 square feet of building space.[19]

[19] Building 79 West is known internally as the Final Assembly, Integration, and Test Hangar, or FAITH.

468. The majority of Building 79 West was given over to the hangar that housed Unity, Eve, and other vehicles in process and finished parts, leaving very little office space.

469. As a result, employees were packed together in a small space. FE 7 commented that Virgin Galactic's offices (and team) were "very, very small".

470. FE 2 worked in the hangar building. He reports that the hangar building had an open office design continuous with the hangar itself. Moses, Whitesides, and some other engineers and executives, worked on an elevated platform that overlooked the hangar. The only thing that obstructed Moses and Whitesides's view of Unity and Eve and the technicians working on them was a guardrail to prevent people from falling to the hangar floor. Moses and Whitesides were located right next to the engineers, too. FE 2 could "walk ten feet" and talk to them.

471. FE 1 moved to New Mexico in or around October 2019. According to FE 1, Moses also moved there.

472. According to FE 1, Virgin Galactic kept its open floor plan in New Mexico. Moses's office overlooked Unity and Eve. As with Mojave, Moses's view was only obstructed by a guardrail. Moses had to cross the hangar every day to get to his office, leave, or go to lunch.

473. FE 1 reports that virtually all of Virgin Galactic's engineers "had [Moses's] ear."

474. Moses attended weekly Monthly Quality Review meetings and was "pretty visible" at weekly company-wide Monday 8:00 a.m. stand-up meetings. At these stand-up meetings, all business units would give an update, and technicians and safety had a regular slot.

475. According to FE 3, Moses also occasionally attended meetings of technicians and crew chiefs. FE 3 himself spoke frequently with Moses. FE 3 adds that Moses must have known about the cracks; the technicians often blew past deadlines because they were repairing cracks.

E. Defendant Branson Habitually Lies About Virgin Galactic

476. For over 15 years Branson promised space flight would be just around the corner.

477. In 2004, Branson announced that "Space flights will begin soon [] 'Within five years, Virgin Galactic will have created over three thousand new astronauts, from many countries.'"

478. In 2005, Branson said that "My aeronautical engineers are designing a Virgin hotel to be built on the moon, or perhaps orbit around it." At that time, Branson promised spaceflights by 2008.

479. Branson began selling tickets based on his promise of spaceflight by 2008. He eventually sold 600 of them, obtaining refundable deposits of more than $80 million.

480. But the rich were not his only victims. He also convinced New Mexico to spend $225 million of taxpayer money to build Spaceport America based on the expectation that Virgin Galactic would soon be making regular flights from its facilities there. Once the runway and terminals were completed, Virgin Galactic would only pay $1.63 million in rent. The State of New Mexico would recoup its investment through fees for each flight. Virgin Galactic committed itself to 104 flights in 2010, and 720 flights per year by 2015. Branson, for himself, stated that "Virgin to launch [1,096 flights per year] from the spaceport by 2010. Each flight will carry six passengers."

481. In 2007, Virgin Galactic also promised sub-orbital spaceflight trips for tourists would be taking place "within 18 months". Alex Tai, a Virgin Pilot and Virgin Group's Director of Special Projects, claimed "[w]e will dub the event 2008, The Year of The Spaceship."

482. Ever since then, commercial spaceflights have been just around the corner.

483. In September 2011, on a CNN interview, Branson claimed:

> We are now very close to making the dream of suborbital space a reality for thousands of people at a cost and level of safety unimaginable even in the recent past. Virgin Galactic has shown in the past few years how private-sector investment and innovation can lead to a rapid transformation of stagnant technologies.

484. As Smithsonian Magazine later explained:

> Virgin Galactic has been *this close* to sending people to space for a decade. In 2004, the company said it would put people in space by 2007. In 2005, they said 2008. In 2010, the window had narrowed to 18 months. In 2012, it was to be no later than 2013. Somewhere in there the timeline slipped to the end of 2014, says the *Journal*, and now it's being pushed back again [to early 2015].[20]
> (emphasis in original)

485. Branson temporarily stopped making promises for a short time after the fatal October 2014 accident.

486. But by April 2017, he said he'd be "very disappointed if we're not into space with a test flight by the end of the year and I'm not into space myself next year and the program isn't well underway by the end of next year."

487. In October 2017, Virgin Galactic was according to Branson, "three months" from flying to space and "six months" from flying him to space.

488. The promises continued in 2018. In May 2018, he told Hollywood Boulevard that his spaceflight was a "month away and not years away, it's so close." He added that "I think [we] will have people in space, you know, within 12 months."

489. Then, in July 2018, he said his spaceflight would take place "before the end of the year."

490. In October 2018, Branson said "we should be in space within weeks, not months. And then we'll be in space with myself in months, not years."

[20] https://www.smithsonianmag.com/smart-news/delay-plagued-virgin-galactic-finds-itself-delayed-again-180952674/

491. After Virgin Galactic's first spaceflight in December 2018, Branson said commercial spaceflights would happen "sometime next year, this space flight couldn't have gone better."

492. In May 2019, he said customers would be in space "by the end of the year," notwithstanding that, as he knew, Unity was grounded.

493. In October 2019, Branson's spaceflight was "next year".

494. Branson lies about even petty things. Virgin Galactic purported to provide a live-stream of Branson's eventual July 2021 spaceflight. In the live-stream, a Virgin Galactic anchor says "let's see how they arrived to Spaceport America" over footage of Richard Branson bicycling. The footage itself is captioned "earlier today." The same day, Virgin Galactic announced a cross-promotional agreement with Trek Bicycle Corp, the bicycle's maker.

495. But after a Reuters investigation suggested the footage was fake, Virgin Galactic admitted that "The footage of Sir Richard Branson shown during the event Sunday was prerecorded and misidentified in the broadcast. We regret the error and any confusion it may have caused."

496. This was no error, but a calculated fraud. Branson had told Bloomberg "so awesome to arrive on a bicycle across this beautiful New Mexico countryside." Thus, Branson lied while the world was watching after an event he called his life's culmination – to promote bicycles.

IX. FALSE STATEMENTS

497. On July 9, 2019, Defendants announced the de-SPAC transaction. A Press Release attributed to Virgin Galactic and SCH and quoting Branson, Whitesides, and Palihapitya, provided:

> ***VG believes it has now reached an inflection point in its development as it progresses towards launching commercial operations. In particular, by demonstrating the repeatability of the full flight profile through the completion of two crewed spaceflights,***

VG believes it has overcome a substantial number of the technical hurdles required to make the company a viable and profitable commercial service.

498. The statements were false because, among other things: (a) the second of the two spaceflights, the February 2019 flight, was not a success because it had ended in disaster; (b) the flights were not repeatable, as on the second flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Virgin Galactic had grounded Unity to address the horizontal stabilizers and many other known safety problems; (d) Eve developed cracks after every flight, many of which were not being fixed; (e) Unity had encountered major safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (f) Unity and Eve were prototypes and would likely never be ready for commercial flights; (g) Virgin Galactic's inspections could not detect problems; (h) Virgin Galactic did not know Unity and Eve's configuration; (i) because of (a)-(h), among other reasons, Virgin Galactic was nowhere near any inflection point, in that Unity and Eve were nowhere near ready to take on passengers, if they ever would be; and (j) Defendants' statements were misleading without disclosure of (a)-(i), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

499. The Press Release quoted Defendant Branson as saying:

> Great progress in our test flight program means that we are ***on track for our beautiful spaceship to begin commercial service.*** By embarking on this new chapter, ***at this advanced point in Virgin Galactic's development***, we can open space to more investors and in doing so, open space to thousands of new astronauts.

500. The statements were false because, among other things: (a) Unity's latest spaceflight, the February 2019 flight, was not a success because it had nearly ended in disaster; (b) unbeknownst to investors, Virgin Galactic had grounded Unity while Virgin Galactic obtained new horizontal stabilizers and while it installed a digital control system to address uncontrollable

shaking at Mach 1.8, among other potentially catastrophic problems; (c) Eve developed cracks every flight, many of which were not being fixed; (d) Unity had encountered major safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (e) Unity and Eve were prototypes and would likely never be ready for commercial flights; (f) Virgin Galactic had not developed a proper inspection system that could detect problems; (g) Virgin Galactic did not know Unity and Eve's configuration; (h) because of (a)-(g), among other reasons, Virgin Galactic's testing program was neither on track nor advanced; and (i) Defendants' statements were misleading without disclosure of (a)-(h), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

501. The Press Release quoted Defendant Palihapitya as saying:

> "It is a privilege to partner with Sir Richard Branson, a once-in-a-generation visionary, to bring the reality of commercial spaceflight to the world. ***We are confident that VG is light years ahead of the competition.*** It is backed by an exciting business model ***and an uncompromising commitment to safety and customer satisfaction***. I cannot wait to take my first trip to space and become an astronaut."

502. The statements were false because, among other things: (a) Unity's latest spaceflight, the February 2019 flight, was not a success because it had nearly ended in disaster; (b) unbeknownst to investors, Virgin Galactic had grounded Unity while Virgin Galactic obtained new horizontal stabilizers and while it obtained a digital control system to address uncontrollable shaking at Mach 1.8, among other potentially catastrophic problems; (c) Eve developed cracks every flight, many of which were not being fixed; (d) Unity had encountered major safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (e) Unity and Eve were prototypes that would likely never be ready for commercial flights; (f) Virgin Galactic had not developed inspections that could detect

problems; (g) Virgin Galactic did not know Unity and Eve's configuration; and, therefore, (h) Defendants' statements were misleading without disclosure of (a)-(g), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

503. Also on July 9, 2019, Defendants publicly filed two letters, one of which was signed by Defendant Whitesides, and both of which stated under header "Why and Why Now?" that:

> ***With the clearing of the huge technical milestone which came from demonstrating Unity's full flight profile with two trips to space***, and the subsequent decision that we were ready to move the teams to Spaceport America, we were presented with a few options, and have decided this is the best course for the business.

504. The statements were false because, among other things: (a) the second of the two spaceflights, the February 2019 flight, was not a success because it had nearly ended in disaster; (b) the flights were not repeatable, as on the second flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Virgin Galactic had grounded Unity to address the horizontal stabilizers and many other known safety problems; (d) Eve developed cracks every flight, many of which were not being fixed; (e) Unity had encountered major safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (f) Unity and Eve were prototypes and would likely never be ready for commercial flights; (g) Virgin Galactic's inspection could not detect problems; (h) Virgin Galactic did not know Unity and Eve's configuration; (i) because of (a)-(h), among other reasons, the second spaceflight was not a milestone and Virgin Galactic is nowhere near the end of its testing program; and (j) Defendants' statements were misleading without disclosure of (a)-(i), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

505. On July 9, 2019, Defendant Branson publicly filed a letter on EDGAR that provided:

> Opening Virgin Galactic to further external investment has been on the cards for a while. ***Great progress in our test flight program means that the remaining hurdles, before our beautiful spaceship starts a full commercial service, are steadily being cleared.*** Having sadly had to pull away from an investment by Saudi Arabia after the murder of journalist Jamal Khashoggi, and then ***having demonstrated the repeatability of our full flight profile with two crewed spaceflights***, we had an opportunity to rethink our investment plans.

506. The statements were false because, among other things: (a) the second of the two spaceflights, the February 2019 flight, was not a success because it had nearly ended in disaster; (b) the flights were not repeatable, as on the second flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Virgin Galactic had grounded Unity to address the horizontal stabilizers and many other known safety problems; (d) Eve developed cracks every flight, many of which were not being fixed; (e) Unity had encountered major safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (f) Unity and Eve were prototypes and would likely never be ready for commercial flights, whatever minimal hurdles Unity and Eve were clearing had no relation to commercial flight; (g) Virgin Galactic's inspections could not detect problems; (h) Virgin Galactic did not know Unity and Eve's configuration; (i) because of (a)-(h), among other reasons, and because Virgin Galactic regularly did not address safety issues as they arose, Virgin Galactic was not making "great strides"; and (j) Defendants' statements were misleading without disclosure of (a)-(i), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

507. On August 8, 2019, Defendants filed a draft Registration Statement on Form S-4. The August Registration Statement provided that:

> ***Unsatisfactory safety performance of our spaceflight systems could have a material adverse effect on our business, financial condition and results of operation.***
> We manufacture and operate highly sophisticated spaceflight systems and offer a specialized astronaut experience that depends on complex technology. ***While we have built operational processes to ensure that the design, manufacture, performance and servicing of our spaceflight systems meet rigorous quality standards,*** there can be no assurance that we will not experience operational or process failures and other problems, including through manufacturing or design defects, pilot error, cyber-attacks or other intentional acts, that could result in potential safety risks. Any actual or perceived safety issues may result in significant reputational harm to our businesses, in addition to tort liability, maintenance, increased safety infrastructure and other costs that may arise. Such issues with our spaceflight systems or customer safety could result in delaying or cancelling planned flights, increased regulation or other systemic consequences. Our inability to meet our safety standards or adverse publicity affecting our reputation as a result of accidents, mechanical failures, damages to customer property or medical complications could have a material adverse effect on our business, financial condition and results of operation.

508. The statements were false because they omitted to disclose: (a) potentially catastrophic problems had already occurred on four of Unity's five powered flights; (b) myriad other safety problems existed and were not addressed; (c) Unity was not even airworthy under FAA standards; (d) Unity's inspectors were not qualified, certified, or dedicated; (e) Unity did not keep track of the design of its vehicles or modifications to them; (f) in at least one instance, in Defendant Moses's presence, a Virgin Galactic executive specifically told an employee not to put a potential safety hazard "on paper" so that there would be no repercussions if there was a fatal accident; (g) Virgin Galactic's inspections could not detect problems; (h) The Spaceship Company fraudulently asserted that used parts were new; (i) Virgin Galactic did not know Unity and Eve's configuration; therefore, (j) as a result of (a)-(i), Virgin Galactic did not meet even basic safety standards, let alone rigorous ones, and its processes were not designed to surface and address safety issues; and (k) Defendants' statements were misleading without disclosure of (a)-(j), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

509. The August Registration Statement also provided that:

> Human spaceflight is an inherently risky activity that can lead to accidents or catastrophes impacting human life. For example, on October 31, 2014, VSS Enterprise, an earlier model of SpaceShipTwo manufactured and operated by a third-party contractor, had an accident during a rocket-powered test flight. The pilot was seriously injured, the co-pilot was fatally injured and the vehicle was destroyed. While ***we have taken steps to address the causes of this accident and taken other preventative safety measures***, there is a possibility that other accidents may occur in the future for a variety of reasons, some of which may be out of our control. Any such accident could result in substantial losses to us, including reputational harm and legal liability, and, as a result, could have a material adverse effect on our business, financial condition and results of operations.

510. The statements were false because they omitted to disclose that: (a) potentially catastrophic problems had already occurred on four of Unity's five powered flights; (b) myriad other safety problems existed and were not addressed; (c) Unity was not even airworthy under FAA standards; (d) Unity's inspectors were not qualified, certified, or dedicated; (e) Unity did not keep track of the design of its vehicles or modifications to them; (f) in at least one instance, in Defendant Moses's presence, a Virgin Galactic executive specifically told an employee not to put a potential safety hazard "on paper" so that there would be no repercussions if there was a fatal accident; (g) Virgin Galactic did not know Unity and Eve's configuration; and, therefore, (h) as a result of (a)-(g), Virgin Galactic did not meet even basic safety standards, let alone rigorous ones, and its processes were not designed to surface and address safety issues; and (i) Defendants' statements were misleading without disclosure of (a)-(h), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements

511. Defendants repeated the statements set out in ¶¶507-510, above, in the documents referenced in the subparagraphs below. They are false for the same reasons:

a. Amendments to the August Registration Statement filed on September 13 and 25 and October 3 and 8, 2019, all signed by Defendant Palihapitiya;

b. A Registration Statement on Form S-1/A filed on February 14, 2021, and subsequently amended on February 28, 2020, which was signed by Defendants Whitesides and Palihapitiya;

c. Virgin Galactic's 10-K for the year ended December 31, 2019, filed February 28, 2020, signed by Defendants Whitesides and Palihapitiya;

d. A Registration Statement on Form S-1 filed on May 1, 2020, and subsequently amended on May 11, 2020, signed by Defendants Whitesides and Palihapitiya;

e. A Registration Statement on Form S-1 filed on August 3, 2020, signed by Defendants Colglazier and Palihapitiya;

f. Virgin Galactic's 10-K for the year ended December 31, 2020, filed on Mach 1, 2021, and amended on March 11, 2021, signed by Defendants Colglazier and Palihapitiya;

g. A Registration Statement on Form S-3, filed May 28, 2021, and subsequently amended on June 17, 2021, signed by Defendants Colglazier and Palihapitiya.

512. On September 5, 2019, Virgin Galactic filed a Prospectus on Form 425. The Prospectus provided:

513. The statements were false because they omitted to disclose that: (a) potentially catastrophic problems had already occurred on four of Unity's five powered flights; (b) myriad other safety problems existed and were not addressed; (c) Unity was not even airworthy under FAA standards; (d) Unity's inspectors were not qualified, certified, or dedicated; (e) Unity did not keep track of the design of its vehicles or modifications to them; (f) in at least one instance, in Defendant Moses's presence, a Virgin Galactic executive specifically told an employee not to put a potential safety hazard "on paper" so that there would be no repercussions if there was a fatal accident; (g) Unity and Eve were prototypes that were not designed to withstand many flights; (h) Virgin Galactic did not know Unity and Eve's configuration; (i) Unity and Eve needed extended maintenance after every flight; (j) as a result of (a)-(i), Virgin Galactic did not meet even basic safety standards, let alone rigorous ones, and its processes were not designed to surface and address safety issues; (k) Unity and Eve were not safe, maintainable, or reliable; and (l) Defendants' statements were misleading without disclosure of (a)-(k), among other facts, because they

materially conflicted with the impression reasonable investors would take from Defendants' statements.

514. On October 16, 2019, Richard Branson was interviewed by Bloomberg Markets: The Close. There, Defendant Branson stated:

> **Q:** Well, the spaceship looks amazing and I'm sure it's comfortable as well. I want to go on a little bit to find out how the test flights are going so far, because I believe you're currently carrying out these test flights. ***Give us a sense of the frequency of the test flights and how far they travel and what you've learned so far from them.***
> **Defendant Branson:** So, we've had an incredible few months. We're the only space company in America, including NASA, to put people into space since 2009. ***We put five – we made five new astronauts. And, so, now what they're doing is fitting out the interior of the spaceship for passenger use, moving the mothership and the spaceship to our lovely space port in New Mexico.*** We'll then do a few more test flights. Then next year I'll go up, ***and then we'll start putting people up.*** And, so, we've got an exciting few months ahead.

515. The statements were misleading because, among other things: (a) Unity's latest spaceflight, the February 2019 flight, had nearly ended in disaster; (b) the flights were not repeatable, because on the second flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Unity was not flying because it was grounded for safety problems, not because it was moving to New Mexico; (d) Virgin Galactic had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (e) Eve developed cracks every flight, many of which were not being fixed; (f) Unity was grounded with no end in sight; (g) Virgin Galactic did not know Unity and Eve's configuration; (h) because of (a)-(g) so there was no basis to claim that Branson would fly in 2020; (i) because of (a)-(h) and because Unity was a prototype not suitable for commercial flight, there was no reason to believe it would ever "start putting people up"; and, therefore (j) Defendants' statements were misleading without disclosure of (a)-(i), among

other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

516. On October 28, 2019, Defendants Branson and Whitesides were interviewed by a Bloomberg reporter. In the interview, Defendants stated:

> **Q:** Talk to me about becoming a public company, because it seems an industry that perhaps should be private. There's going to be a lot of scrutiny, I guess, about what you guys are doing, and ***it just seems like it's always going to be one accident, one crash away from oblivion. So, what was the logic to becoming a public company?***
>
> **Defendant Branson:** Well, we spent fifteen years developing the company as a private company, and there came a stage where we felt "Let's involve the public. Let's involve institutions" to help us on to the final stage.
> What's been gratifying is that many of the biggest institutions in the world have been to the space port, have been to the Mojave, they've seen the spaceships, the way that rockets are built, and they feel comfortable, I think, with the job our team has done over the last fifteen years.
> I think the other thing, which I think George can talk to, is ***just how safe our spaceship company is, in the way it's been built. Do you want to touch on that, George?***
>
> **Whitesides:** Sure. I mean, what's exciting, is that ***we've been flight testing these vehicles, for now, nearly ten years, and we believe we have an architecture that is extremely reliable and also has aspects that are very suited to the customer experience.*** For example, taking off from a runway, landing on a runway. Those are things that I think will have a very nice, smooth start and ending to the customer experience. And, then, our rocket motor is actually the simplest and, thus, safest – we think – human-rated rocket motor for our class of rocketry. So, for all these reasons we feel really good about the system.

517. The statements were misleading because, among other things: (a) the second of the two spaceflights, the February 2019 flight, was not a success because it had nearly ended in disaster; (b) on that flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Virgin Galactic had grounded Unity to address the horizontal stabilizers and many other known safety problems; (d) Eve developed cracks every flight, many of which were not being fixed; (e) Virgin Galactic had encountered unresolved major safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any

commercial flights; (f) Virgin Galactic's inspections could not detect problems; (g) Unity and Eve were prototypes designed to withstand just a few flights; (h) Virgin Galactic did not know Unity and Eve's configuration; (i) because of (a)-(h), among other reasons, and because Virgin Galactic regularly did not address safety issues as they arose, Virgin Galactic's vehicles were neither reliable nor safe; and, therefore (j) Defendants' statements were misleading without disclosure of (a)-(i), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

518. In that same interview, Branson stated that:

> [S]uccess is creating the world's first space company, and it is the first space company to float on the stock exchange, and it's the first commercial space company to spend five people into space. So, we've had an extraordinary few months and ***next year I'll be going into space, and we'll be starting to send a lot of people into space.***

519. The statements were misleading because, among other things: (a) the second of the two spaceflights on which Virgin Galactic made astronauts, had nearly ended in disaster; (b) the flights were not repeatable, because on the second flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Unity was not flying because it was grounded for safety problems; (d) Virgin Galactic had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (e) Eve developed cracks every flight, many of which were not being fixed; (f) Unity was grounded with no end in sight; (g) Virgin Galactic's inspections could not detect problems; (h) Virgin Galactic did not know Unity and Eve's configuration; (i) because of (a)-(h) there was no basis to claim that Branson would fly in 2020; (j) because of (a)-(h) and because Unity was a prototype not suitable for commercial flight, there was no reason to believe it would ever "start[] to send a lot of people into space"; and (k) Defendants' statements

were misleading without disclosure of (a)-(j), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

520. During that interview Branson also stated that:

> well, I think, we have the advantage of having already put people into space and we've made five new astronauts; there haven't any others made on American soil since 2009. And, so, ***we have a tested and tried system that is performing well***.

521. The statements were misleading because, among other things: (a) the second of the two spaceflights, the February 2019 flight, was not a success because it had nearly ended in disaster; (b) Unity's architecture was not reliable, as on the second flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Virgin Galactic had grounded Unity to address the horizontal stabilizers and many other known safety problems; (d) Eve developed cracks every flight, many of which were not being fixed; (e) Virgin Galactic had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (f) Virgin Galactic's inspections could not detect problems; (g) Virgin Galactic did not know Unity and Eve's configuration; and (h) Defendants' statements that Virgin Galactic's system was "tested and tried [and] performing well" were misleading without disclosure of (a)-(g), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

522. On November 20, 2019, Defendant Palihapitiya told CNBC that commercial flights "will begin in about six to nine months" and that "I think the story of Virgin is just so new that it hasn't been written yet. ***We'll start commercial operations in the middle of next year, so the full-fledged business value will become apparent very quickly to a lot more people at that point***."

523. The statements were misleading because, among other things: (a) the second of the two spaceflights, the February 2019 flight, was not a success because it had nearly ended in disaster; (b) the flights were not repeatable, because on the second flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Unity was grounded with no end in sight; (d) Virgin Galactic had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (e) Eve developed cracks every flight, many of which were not being fixed; (f) Virgin Galactic's inspections could not detect problems; (g) Unity and Eve were prototypes not meant to withstand more than a few flights; (h) Virgin Galactic did not know Unity and Eve's configuration; (i) because of (a)-(h) there was no basis to claim that commercial flights would begin in the following six to nine months; and, therefore, (j) Defendants' statements were misleading without disclosure of (a)-(i), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

524. On December 13, 2019, Defendants published a press release titled *Reflecting on a Remarkable Year* on Virgin Galactic's website. In the press release, Defendants stated:

> Virgin Galactic reaches space for the second time
>
> ***Ten weeks after our first flight to space, we did it again, travelling higher and faster than ever before and, for the first time, with a third crew member on board.*** This flight saw two more of our pilots, Dave Mackay and Mike 'Sooch' Masucci, become commercial astronauts, with Chief Pilot Mackay entering the record books as the first Scot in space. Our Chief Astronaut Instructor, Beth Moses, flew as the third crew member to carry out a live evaluation of cabin dynamics – floating freely in zero gravity. She became the first woman to fly on board a commercial spaceship and had the coveted honor of being awarded the title of Commercial Astronaut 007.

525. The statements were misleading because, among other things: (a) the flight being referred to, the February 2019 flight, was not a success because it had nearly ended in disaster; (b) the flight was not repeatable because on the flight, Unity's horizontal stabilizers were destroyed

and took up to fourteen months to replace; (c) Unity was not flying because it was grounded for safety problems; (d) Virgin Galactic had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (e) Eve developed cracks every flight, many of which were not being fixed; and, (f) Unity was grounded with no end in sight because Virgin Galactic needed to repair it; (g) Virgin Galactic's inspections could not detect problems; (h) Virgin Galactic did not know Unity and Eve's configuration; (i) because (a)-(h) the impression Defendants gave by stating "we did it again", namely, that the flight was successful, was misleading; and, therefore, (j) Defendants' statements were misleading without disclosure of (a)-(h), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

526. The words "This flight" in the above-quoted paragraph were a link to a February 22, 2019 press release Defendants published and placed on Virgin Galactic's website titled *Virgin Galactic Makes Space for Second Time in Ten Weeks with Three on Board, Reaching Higher Altitudes and Faster Speeds, as Flight Test Program Continues*, which provided:

> In its fifth supersonic rocket powered test flight, Virgin Galactic reached space for the second time today in the skies above Mojave CA. Spaceship VSS Unity reached its highest speed and altitude to date and, for the first time, carried a third crew member on board along with research payloads from the NASA Flight Opportunities program.
>
> This space flight means Chief Pilot Dave Mackay and co-pilot Michael "Sooch" Masucci become commercial astronauts and the 569th and 570th humans in space. Beth Moses, Virgin Galactic's Chief Astronaut Instructor, flew as the third crew member in a first, live evaluation of cabin dynamics. She is the 571st person to fly to space and the first woman to fly on board a commercial spaceship.
>
> In addition to this element of envelope expansion, VSS Unity flew higher and faster than ever before, as its world record-holding hybrid rocket motor propelled the spaceship at Mach 3.04 to an apogee of 295,007ft.
>
> The crew enjoyed extraordinary views of Earth from the black skies of space and, during several minutes of weightlessness while the pilots "feathered" the spaceship in preparation for a Mach 2.7 re-entry, Beth floated free to complete a number of cabin evaluation test

points. ***The human validation of data previously collected via sensors, and the live testing of other physical elements of the cabin interior, are fundamental to the provision of a safe but enjoyable customer experience.***

The glide back home was followed by a smooth runway landing and a rapturous reception from the crowd on the flight line, which included staff and some of Virgin Galactic's 600 Future Astronaut customers.

Chief Pilot Dave Mackay, a born and bred Scotsman as well as an ex-RAF test pilot and Virgin Atlantic Captain, led his crew of newly qualified astronauts from VSS Unity accompanied by a kilted piper.

Today's flight notched several additional firsts for the industry: The flight was the first time that a non-pilot flew on board a commercial spaceship to space, and it was the first time that a crew member floated freely without restraints in weightlessness in space onboard a commercial spaceship; it was the first time that three people flew to space on a commercial spaceship, and Dave Mackay became the first Scottish-born astronaut (Brian Binnie, who was raised in Scotland, flew to space in 2004).

Addressing colleagues and guests Dave said: "Beth, Sooch and I just enjoyed a pretty amazing flight which was beyond anything any of us has ever experienced. It was thrilling yet smooth and nicely controlled throughout with a view at the top, of the Earth from space, which exceeded all our expectations. ***I am incredibly proud of my crew and of the amazing teams at Virgin Galactic and The Spaceship Company for providing a vehicle and an operation which means we can fly confidently and safely***. For the three of us today this was the fulfillment of lifelong ambitions, but paradoxically is also just the beginning of an adventure which we can't wait to share with thousands of others."

Sir Richard Branson said: "***Flying the same vehicle safely to space and back twice in a little over two months, while at the same time expanding the flight envelope, is testament to the unique capability we have built up within the Virgin Galactic and The Spaceship Company organizations.*** I am immensely proud of everyone involved. Having Beth fly in the cabin today, starting to ensure that our customer journey is as flawless as the spaceship itself, brings a huge sense of anticipation and excitement to all of us here who are looking forward to experiencing space for ourselves. The next few months promise to be the most thrilling yet"

527. The statements were misleading because, among other things: (a) the flight being referred to, the February 2019 flight, had nearly ended in disaster; (b) the flight was not repeatable, because on the flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Unity was not flying because it was grounded for safety problems; (d) Virgin Galactic had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights;

(e) Eve developed cracks every flight, many of which were not being fixed; (f) Unity was grounded with no end in sight; (g) Virgin Galactic's inspections could not detect problems; (h) Unity and Eve were prototypes built to withstand only a few flights; (i) Virgin Galactic did not know Unity and Eve's configuration; and therefore (j) because of (a)-(i) there was no basis to claim that Virgin Galactic could offer "safe [and] enjoyable customer experience[s]"; (k) because of (a)-(i) Defendants had no basis to say "we can fly confidently and safely"; (l) the impression Defendant Branson gave with his statement that Virgin Galactic had flown "the same vehicle safely to space and back twice in a little over two months", namely that the flights were safe and themselves repeatable, was misleading; and, therefore (m) Defendants' statements were misleading without disclosure of (a)-(l), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

528. On February 25, 2019, Virgin Galactic published a press release ("Q4 2019 PR") and held a call ("Q4 2019 Call") to discuss its Q4 2019 earnings.

529. The Q4 2019 PR quoted Defendant Whitesides as saying:

> ***"Throughout 2019, we continued to achieve key milestones in our mission to open access to space in a safe, innovative and affordable way,"*** said George Whitesides, Chief Executive Officer of Virgin Galactic. "During the fourth quarter, we took major steps toward reaching that goal by completing our transaction with Social Capital Hedosophia and becoming publicly listed on the NYSE, as well as building operational readiness at Spaceport America in New Mexico. ***The progress we made in 2019,*** combined with the high level of interest from potential customers***, underpin the steps we are taking toward reopening ticket sales. We are continuing to build on our strong momentum as we enter the most exciting chapter of our story to date and prepare for commercial launch."***

530. The statements were misleading because, among other things: (a) there was no progress in 2019, in that the only spaceflight in February 2019 was not a success because it nearly ended in disaster; (b) the flights were not repeatable, because on the second flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Unity was not

flying because it was grounded for safety problems; (d) Virgin Galactic had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (e) Eve developed cracks every flight, many of which were not being fixed; (f) Unity was grounded with no end in sight; (g) Virgin Galactic's inspections could not detect problems; and, therefore, (h) Unity and Eve were prototypes not suitable for commercial flight; (i) Virgin Galactic did not know Unity and Eve's configuration; and, therefore (j) whatever milestones Virgin Galactic were not related to commercialization; and (k) Defendants' statements were misleading without disclosure of (a)-(j), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

531. On the Q4 2019 Call, Defendant Whitesides stated:

> We followed [the December 2018 flight] up by having the first non-pilot crew member flown on a commercial space vehicle on February 22, 2019. Beth Moses, our chief Astronaut Instructor, ***completed her first successful space flight,*** becoming the first non-pilot crew member to fly on a commercial space vehicle[.]

532. The statements were misleading because, among other things: (a) the February 2019 flight Whitesides refers was not successful because it had nearly ended in disaster; (b) on that flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Unity was not flying because it was grounded for safety problems; (d) Virgin Galactic had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (e) Eve developed cracks every flight, many of which were not being fixed; (f) Unity was grounded with no end in sight; (g) Virgin Galactic's inspections could not detect problems; (h) Virgin Galactic did not know Unity and Eve's configuration; (i) because of (a)-(h) so there was no basis to call the February 22, 2019 flight successful; and, therefore, (j) Defendants' statements were misleading without

disclosure of (a)-(i), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

533. In the Q&A portion of the Q4 2019 Call, Defendant Whitesides stated:

> Q: What are the key gating items from among those three [flight test, customer experience, and readying the vehicles] that you need to get through to get this first commercial flight? And are you still on schedule for mid-summer? It sounded before like – the schedules influx a little bit as you get everything as perfect as you need.
>
> **Defendant Whitesides**: Yeah. Well, as you know, ***our number one priority is to fly safely, and not just Sir Richard but anybody we fly whether it's the pilots that we fly or employees that we might fly in the late test program, that's our number one priority.*** What we're affirming today as you know that our number one priority is to fly Richard Branson into space on a commercial flight in 2020. That's what our entire organization is really that they know that that's the top priority.

534. The statements were misleading because, among other things: (a) the February 2019 flight Whitesides refers was not successful because it had nearly ended in disaster; (b) on that flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Unity was not flying because it was grounded for safety problems; (d) Virgin Galactic had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (e) Eve developed cracks every flight, many of which were not being fixed; (f) Unity was grounded with no end in sight; (g) Virgin Galactic's inspections could not detect problems; (h) Virgin Galactic did not know Unity and Eve's configuration; (i) because of (a)-(h) there was no basis to claim that flying Branson into space in 2020 was at all a realistic goal; (j) in at least one instance, in Defendant Moses's presence, a Virgin Galactic executive specifically told an employee not to put a potential safety hazard "on paper" so that there would be no repercussions if there was a fatal accident; (k) Defendants' statements were misleading without disclosure of (a)-(j), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

535. On May 5, 2020, Virgin Galactic held a call ("Q1 2020 Call") to discuss its Q1 2020 earnings.

536. On the Q1 2020 Call, Defendant Whitesides said:

> Turning to Slide 7. Let me start briefly highlighting some of the key milestones we achieved in 2019 that demonstrate our progress and pace so far. Following our successful launch of the first commercial space vehicle to put humans in space in December 2018, ***we flew the first non-pilot crew member, our Chief Astronaut Instructor Beth Moses, on a commercial space vehicle in February 2019***

537. The statements were misleading because, among other things: (a) Unity's spaceflight in 2019 was not successful because it had nearly ended in disaster; (b) on that flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Unity was not flying because it was grounded for safety problems; (d) Virgin Galactic had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (e) Eve developed cracks every flight, many of which were not being fixed; (f) Unity was grounded with no end in sight; (g) Virgin Galactic's inspections could not detect problems; (h) because of (a)-(g) so there was no basis to suggest the February 22, 2019 flight was successful; and, therefore, (i) Defendants' statements were misleading without disclosure of (a)-(h), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

538. On June 25, 2020, Virgin Galactic published a press release announcing its second glide flight from Spaceport America. The press release quoted Defendant Whitesides as saying:

> "***I am thrilled with the team's hard work to complete today's test flight successfully. It was an important test that, pending data review, means we can now start preparing the vehicles for powered flight. Our focus for this year remains unchanged on ensuring the vehicles and our operations are prepared for long-term, regular commercial spaceflight service.***"

539. The statements were misleading because, among other things: (a) Unity was not ready for powered flights because Virgin Galactic employees were still installing parts necessary

for it to function; the February 2019 flight Whitesides refers was not successful because it had nearly ended in disaster; (b) Virgin Galactic had a track record of unsuccessful flights, because it had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (c) on the February 2019 flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (d) Eve developed cracks every flight, many of which were not being fixed; (e) Virgin Galactic's inspections could not detect problems; (f) Unity and Eve were prototypes not suitable for commercial flight; (g) whatever small milestones Virgin Galactic met were not related to commercialization; (h) Virgin Galactic did not know Unity and Eve's configuration; and, therefore, (i) Defendants' statements were misleading without disclosure of (a)-(h), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

540. On July 15, 2020, Virgin Galactic held a call to discuss Defendant Colglazier's appointment as CEO. On the call, Defendant Whitesides told investors Virgin Galactic was "within spitting distance" of commercial operations:

> Q: Okay great. And then just – I think I know the answer to this one. But to me, it seems like a pretty big signal you guys are putting out here today that you feel that the technical risk of the flight test program is largely retired? Is that a correct takeaway for me?
>
> **Defendant Whitesides*: I think it's fair to say that we are now within spitting distance, and we are in a multi-month march to commercial ops. So things are going well.***

541. The statements were misleading because, among other things: (a) Unity was not ready for powered flights because Virgin Galactic employees were still installing parts necessary for it to function; (b) Virgin Galactic had a track record of unsuccessful flights, because it had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (c) on the February

2019 flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (d) Eve developed cracks every flight, many of which were not being fixed; (e) Virgin Galactic's inspections could not detect problems; (f) Unity and Eve were prototypes not suitable for commercial flight; (g) Virgin Galactic did not know Unity and Eve's configuration; (h) whatever milestones Virgin Galactic were not related to commercialization; and, therefore, (i) Defendants' statements were misleading without disclosure of (a)-(h), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

542. On July 28, 2020, Virgin Galactic published a video unveiling Unity's cabin. During the presentation, Defendant Colglazier stated:

> Today, we're sharing the combination of incredible creativity, unswerving dedication, and total commitment to realizing our dream of opening space, to change the world for good. In a moment, we will be revealing to you for the first time, the interior design of our spaceship cabin. In many ways, the cabin is the design centerpiece of this transformational journey. ***It's this cabin that will enable hundreds and then thousands of people to embark on one of the most unforgettable journeys of their lives, that a space flight.*** Our astronauts are going to experience the majesty of space from within these cabins walls and they'll be peering out the windows at the beauty of our home planet from the black sky around them.

543. The statements were misleading because, among other things: (a) Unity was not ready for powered flights because Virgin Galactic employees were still installing parts necessary for it to function; (b) Virgin Galactic had a track record of unsuccessful flights, because it had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (c) on the February 2019 flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (d) Eve developed cracks every flight, many of which were not being fixed; (e) Virgin Galactic's inspections could not detect problems; (f) Unity and Eve were prototypes not suitable

for commercial flight; (g) Virgin Galactic did not know Unity and Eve's configuration; (h) Unity's cabin would not take "hundreds and then thousands of people" to space, because Unity was a prototype well past its expiration date; (h) Defendants' statements were misleading without disclosure of (a)-(g), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

544. For his part, Defendant Whitesides stated:

> Our cabin needs to balance the functional and emotional needs of our customers in a high adrenaline environment, as well as a weightless viewing platform. So every touchpoint has been designed with intuitive usability. ***Virgin Galactic Spaceship 2 system is designed to fly both humans and science research payloads to space.*** So the cabin design is flexible. We can easily replace the seats with payload racks for specific flights and this importantly means that we can fly researchers with their experiments, a unique space science lab for affordable and repeatable human-tended science research.

545. The statements were misleading because, among other things: (a) Unity was not ready for powered flights because Virgin Galactic employees were still installing parts necessary for it to function; (b) Virgin Galactic had a track record of unsuccessful flights, because it had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (c) on the February 2019 flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (d) Eve developed cracks every flight, many of which were not being fixed; (e) Virgin Galactic's inspections could not detect problems; (f) Unity and Eve were prototypes not suitable for commercial flight; (g) Unity and Eve were designed to fly a few test flights and then serve as resources for Virgin Galactic to design its own shuttles; therefore, (h) Unity was not designed to fly either humans or payloads to space; (i) Virgin Galactic did not know Unity and Eve's configuration; and (j) Defendants' statements were misleading without disclosure of (a)-(i), among

other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

546. On August 3, 2020, Virgin Galactic held an earnings call ("Q2 2020 Call") to discuss Q2 2020 highlights.

547. On the Q2 2020 Call, Defendant Colglazier stated:

> ***As always, safety will remain our central focus*** and we will continue to progress with a step-by-step diligent approach throughout the test flight program as we prepare for commercial service. As such, our schedule may adjust as we process data from each of our test flights.

548. The statements were misleading because, among other things: (a) the February 2019 flight had nearly ended in disaster; (b) on that flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Virgin Galactic had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (d) Eve developed cracks every flight, many of which were not being fixed; (e) Virgin Galactic's inspections could not detect problems; (f) in at least one instance, in Defendant Moses's presence, a Virgin Galactic executive specifically told an employee not to put a potential safety hazard "on paper" so that there would be no repercussions if there was a fatal accident; (g) Virgin Galactic did not know Unity and Eve's configuration; therefore (h) schedules were Virgin Galactic's priority, not safety; and (i) Defendants' statements were misleading without disclosure of (a)-(h), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

549. On October 14, 2020, Virgin Galactic published a press release announcing that it was preparing for another powered flight. The press release stated:

> ***In these final preparations we are working through a number of rigorous steps to prepare the vehicles, pilots, teams and facilities, ensuring that we remain focused on safety as our top priority.***
>
> * * * * *
>
> Preparing VSS Unity for flight also includes a "practice run" for the spaceship, as well as the pilots and teams in mission control. We put Unity through its paces on the ground, testing all systems prior to flight to ensure functionality – including raising the feather, swinging the landing gear, firing the reaction control thrusters, and sweeping the flight control systems through full range of motion. Pre-flight vehicle checks are designed to functionally verify that all systems are working as they should be, prior to the take-off.

550. The statements were misleading because, among other things: (a) the February 2019 flight had nearly ended in disaster; (b) on that flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Virgin Galactic had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (d) Eve developed cracks every flight, many of which were not being fixed; (e) Virgin Galactic's inspections could not detect problems; (f) in at least one instance, in Defendant Moses's presence, a Virgin Galactic executive specifically told an employee not to put a potential safety hazard "on paper" so that there would be no repercussions if there was a fatal accident; (g) Virgin Galactic did not know Unity and Eve's configuration; therefore (h) schedules were Virgin Galactic's priority, not safety; and (i) Defendants' statements were misleading without disclosure of (a)-(h), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

551. On November 2, 2020, Virgin Galactic published a press release entirely attributed to Defendant Moses. The press release stated:

> ***The spaceflight system is designed for rapid commercial turnaround, so it is much better to stay on the side of caution and return to base to understand the data and prepare for another test flight.***
>
> * * * * *
>
> ***We've made upgrades to the horizontal stabilizers (known as H-Stabs), which are the flight control surfaces on the outboard of the feather booms.*** We've also made improvements to the flight control system that commands these Hstabs to move in response to pilot inputs. We've already flown these improvements on our last two glide flights, and they performed well. Together these mods will enhance the performance of the spaceship and support long-term commercial service.

552. The statements were misleading because, among other things: (a) Unity was not ready for powered flights because Virgin Galactic employees were still installing parts necessary for it to function; (b) Virgin Galactic had a track record of unsuccessful flights, because it had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (c) on the February 2019 flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (d) Eve developed cracks every flight, many of which were not being fixed; (e) Virgin Galactic's inspections could not detect problems; (f) Unity and Eve were prototypes not suitable for commercial flight; (g) Unity and Eve were designed to fly a few test flights and then serve as resources for Virgin Galactic to design its own shuttles; therefore, (h) Unity was not designed to fly either humans or payloads to space; (i) Virgin Galactic did not know Unity and Eve's configuration; (j) Virgin Galactic did not "upgrade" the horizontal stabilizers but rather replaced them with new stabilizers that were necessary because the horizontal stabilizers had been irreparably damaged on the previous flight; (k) because they were made of aluminum rather than composite, the new horizontal stabilizers were inferior to the original stabilizers; (l) Defendants' statements were misleading without disclosure of (a)-(k), among other facts, because they

materially conflicted with the impression reasonable investors would take from Defendants' statements.

553. On November 5, 2020, Virgin Galactic issued a press release ("Q3 2020 PR") and held an earnings call ("Q3 2020 Call") to discuss Q3 2020 highlights. The Q3 2020 PR provided in relevant part:

> ***Implemented upgraded flight control system and upgraded horizontal stabilizers on VSS Unity to increase performance during the boost phase of the flight profile.***

554. The statements were misleading because, among other things: (a) the February 2019 flight had nearly ended in disaster; (b) on that flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Virgin Galactic did not "upgrade" the horizontal stabilizers but rather replaced them with new stabilizers that were necessary because the horizontal stabilizers had been irreparably damaged on the previous flight; and (d) because they were made of aluminum rather than composite, the new horizontal stabilizers were inferior to the original stabilizers.

555. On the Q3 2020 Call, Defendant Moses stated:

> ***The horizontal stabilizers, also known as h stabs, are the flight control surfaces on the outboard side of the booms, we've made improvements to these services***, as well as upgrading the flight control system that drives them.

556. The statements were misleading because, among other things: (a) the February 2019 had nearly ended in disaster; (b) on that flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Virgin Galactic did not "upgrade" the horizontal stabilizers but rather replaced them with new stabilizers that were necessary because the horizontal stabilizers had been irreparably damaged on the previous flight; and (d) because they were made of aluminum rather than composite, the new horizontal stabilizers were inferior to the original stabilizers.

557. On the call, Defendant Colglazier stated:

> ***We're going to focus on safety first, as we always do***, but we also really want to focus and ensure we get the experience just right.

558. The statements were misleading because, among other things: (a) the February 2019 flight had nearly ended in disaster; (b) on that flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Virgin Galactic had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (d) Eve developed cracks every flight, many of which were not being fixed; (e) Virgin Galactic's inspections could not detect problems; (f) in at least one instance, in Defendant Moses's presence, a Virgin Galactic executive specifically told an employee not to put a potential safety hazard "on paper" so that there would be no repercussions if there was a fatal accident; (g) Virgin Galactic did not know Unity and Eve's configuration; therefore (h) schedules were Virgin Galactic's priority, not safety; and (i) Defendants' statements were misleading without disclosure of (a)-(h), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

559. On February 2, 2021, Defendant Moses was quoted by the Washington Post as saying in a February 1, 2021 interview regarding the February 2019 flight:

> ***"We thoroughly inspect the vehicle, updating our analysis; we update and critique our performance and make sure we're happy with the results before we go to those next flights,"*** he said. "***We take our time and make sure things are right."***

560. The statements were misleading because, among other things: (a) the February 2019 flight had nearly ended in disaster; (b) on that flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Virgin Galactic had encountered major

unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (d) Eve developed cracks every flight, many of which were not being fixed; (e) Virgin Galactic's inspections could not detect problems; (f) in at least one instance, in Defendant Moses's presence, a Virgin Galactic executive specifically told an employee not to put a potential safety hazard "on paper" so that there would be no repercussions if there was a fatal accident; (g) Virgin Galactic did not know Unity and Eve's configuration; therefore (h) schedules were Virgin Galactic's priority, not safety; and (i) Defendants' statements were misleading without disclosure of (a)-(h), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

561. On February 25, 2021, Virgin Galactic held an earnings call ("Q4 2020 Call") to discuss Q4 2020 highlights.

562. On the Q4 2020 Call, Defendant Moses stated: ***"Our safety culture is built around the principle that everyone in the company has the ability to call attention to an issue."***

563. The statements were misleading because, among other things: (a) the February 2019 flight had nearly ended in disaster; (b) on that flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Virgin Galactic had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (d) Eve developed cracks every flight, many of which were not being fixed; (e) Virgin Galactic's inspections could not detect problems; (f) in at least one instance, in Defendant Moses's presence, a Virgin Galactic executive specifically told an employee not to put a potential safety hazard "on paper" so that there would be no repercussions if there was a fatal accident; (g) Virgin Galactic did not know Unity and Eve's

configuration; therefore (h) schedules were Virgin Galactic's priority, not safety; and (i) Defendants' statements were misleading without disclosure of (a)-(h), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

564. On July 2, 2021, Defendant Moses was interviewed on CNBC Squawk on the Street. In the interview, Defendants made several statements about Virgin Galactic's safety culture:

> **Q:** Yeah, what an exciting couple of weeks we have ahead of us. You know, I spoke to Sir Richard earlier this week when your sister company, Virgin Orbit, successfully carried satellites to orbit. And at that time, when I asked him what the game plan was for him to go to space, he said that he was waiting for the engineers to tell me when I can go to space, quote-unquote. You take that, you couple it with the FAA approval last Friday, how long has this plan been in the works?
>
> **Defendant Moses:** Well, the plan has been in the works for quite some time because we had this test flight program going on. And as you know, we have four test flights we were planning to do. ***We did our first on May 22nd. And it was excellent and it showed that we are technically ready to go. We did a lot of diligent analysis after that flight. That's the same data that we gave to the FAA. And as you mentioned, that's what the FAA used as the basis to approve our commercial license going forward. And when we finished that analysis, we knew we would be pivoting from focus on the technical side of the flight test to the focus on the cabin experience and what the astronaut experience would be like for these next two flights.*** But we had to wait until the technical work was done and Richard was pretty patient about that.
>
> So then as we shift this focus to now the private astronaut experience and the cabin environment, these next two test flights are pretty much going to be the same. We originally had thought we would maybe rehearse and have somebody stand-in for Richard just to kind of show what would be going on. We realized most of that training is done on the ground and so, had a chance to say to Richard, you could go on either of these two flights, which would you prefer? You can kind of imagine what he had to say back. And he's excited to go now that it's ready.
>
> * * * * *
>
> **Q:** Safety, it's of the utmost importance. How are you planning for that? What does that look like?
>
> **Defendant Moses**: ***I would say safety is built in at the foundation of everything we do. And, you know, you mentioned we were originally planning to fly Richard well back like a year ago, and we had more test flights to do, we have more efforts to go, and so we never really worry about the schedule driving anything. We worry about our technical readiness driving everything. And so that's how this company works, that's how we're***

> ***built, that's where we're embedding in the culture of this. So now that the technical readiness is there and it's there because of the data that shows it's there, and it's there because of the diligence of the team that works on this so hard.*** So now that that is ready, it does really give us the ability to focus on the next phase, the cabin experience. And now we're going to get repetition and repeating under our belt on the technical flights. The last flight in May flew just as we wanted it to go so we're just going to keep doing that flight profile and move forward. But this takes us another step to opening the door of making space accessible for far more people than has ever been possible and that's pretty exciting.

565. The statements were misleading because, among other things: (a) the February 2019 flight had nearly ended in disaster; (b) on that flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Virgin Galactic had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date, all of which would need to be addressed before any commercial flights; (d) Eve developed cracks every flight, many of which were not being fixed; (e) Virgin Galactic's inspections could not detect problems; (f) in at least one instance, in Defendant Moses's presence, a Virgin Galactic executive specifically told an employee not to put a potential safety hazard "on paper" so that there would be no repercussions if there was a fatal accident; (g) Virgin Galactic did not know Unity and Eve's configuration; (h) schedules were Virgin Galactic's priority, not safety; (i) Unity was not "technical[ly] read[y]" to fly to space; (j) Defendants' statements were misleading without disclosure of (a)-(i), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

566. On July 11, 2021, Virgin Galactic published a press release concerning Unity's first full crewed space flight, on which Branson was a passenger. The press release quoted Defendant Colglazier as saying:

> ***Today is a landmark achievement for the Company and a historic moment for the new commercial space industry. With each successful mission we are paving the way for the next generation of astronauts.*** I want to thank our talented team, including our pilots and crew, whose dedication and commitment made today possible. They are helping open the door for greater access to space – so it can be for the many and not just for the few.

567. Defendants' statements were misleading, among other reasons, because: (a) Unity had strayed from its vertical glide cone and FAA airspace for a substantial portion of the flight; (b) straying was a mishap under FAA regulations; and, therefore, (c) the July 11 flight was not successful; (d) Unity and Eve were prototypes not suitable for commercial flight; (e) Virgin Galactic did not know Unity and Eve's configuration; therefore (f) even if the flight had proven something about Unity, it would not advance the goal of taking customers to space; and (g) Defendants' statements were misleading without disclosure of (a)-(f), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

568. That same day, Defendant Colglazier also appeared on Bloomberg Markets' The Close. There, Defendant Colglazier stated:

> **Q:** A lot of the event was about Richard, you know, Richard was front and center, but you know, as the CEO of the commercial business, what does today represent for you? What does it allow you to do?
>
> **Defendant Colglazier:** Well, two things. I think for the world, it allows us to show that something people never thought was gonna happen in their lifetimes is actually happening now. ***The ability for regular people to be able to go to space and it will take years to really get the scale of it up but I think we showed today what that is going to be like and a taste of that going forward.*** So that was huge. And then at a business level, this was one of the remaining flight tests that we need to do as we move into commercial service. So we've got two more. ***This one was perfect***
>
> ***** ***** ***** ***** *****
>
> **Q:** Was Sunday's event about selling tickets? Was that really what it was about?
>
> **Michael Colglazier:** ***This event was about showcasing to the world what this Virgin Galactic experience is going to be. And this event was part of our incredible safety diligent program to make sure that we go step-by-step so that when we do open this up for commercial service, we've done all that needs to be done. So it's amazing and anchored in safety experience and that's what today was about.***

569. Defendants' statements were misleading, among other reasons, because: (a) Unity had strayed from its vertical glide cone and FAA airspace for a substantial portion of the flight; (b) straying was a mishap under FAA regulations; and, therefore, (c) the July 11 flight was not successful; (d) Unity and Eve were prototypes not suitable for commercial flight; and, therefore (e) even if the flight had proven something about Unity, it would not advance the goal of taking customers to space; (f) Eve developed cracks every flight, many of which were not being fixed; (g) Virgin Galactic's inspections could not detect problems; (h) in at least one instance, in Defendant Moses's presence, a Virgin Galactic executive specifically told an employee not to put a potential safety hazard "on paper" so that there would be no repercussions if there was a fatal accident; (i) Unity was in no condition to fly in July 2020 because Virgin Galactic was still trying to install parts necessary for flight; (j) Virgin Galactic did not know Unity and Eve's configuration; therefore (k) schedules were Virgin Galactic's priority, not safety; and (l) Defendants' statements were misleading without disclosure of (a)-(k), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

570. Bloomberg Markets also interviewed Defendant Branson:

> **Q:** Well, what does it mean for the company? There was some risk involved. I'm sure that some of your staff looking at me right now were nervous at points.
>
> **Defendant Branson:** ***Well, look, the company is 17 years, they've had a number of flawless flights. They've never had any major, major technical issues even, you know, in the last 17 years and this was absolutely and utterly flawless.***

571. The statements were misleading because, among other things: (a) the February 2019 flight had nearly ended in disaster; (b) on that flight, Unity's horizontal stabilizers were destroyed and took up to fourteen months to replace; (c) Virgin Galactic had encountered major unresolved safety problems in its first, third, fourth, and fifth powered flights to date; (d) Eve developed cracks every flight, many of which were not being fixed; (e) Virgin Galactic's

inspections could not detect problems; (f) in at least one instance, in Defendant Moses's presence, a Virgin Galactic executive specifically told an employee not to put a potential safety hazard "on paper" so that there would be no repercussions if there was a fatal accident; (g) Virgin Galactic's test program had already killed four people; (h) Unity had strayed from its vertical glide cone and FAA airspace for a substantial portion of the flight; (i) straying was a mishap under FAA regulations; and, therefore, (k) the July 11 flight was not successful; Defendants' statements were misleading without disclosure of (a)-(j), among other facts, because they materially conflicted with the impression reasonable investors would take from Defendants' statements.

X. ITEMS 303 AND 503 OF REGULATION S-K MANDATED DISCLOSURE

572. SEC Regulation S-K (27 C.F.R. § 229.10) mandates that registration statements such as the ones filed by Virgin Galactic comply with the other requirements of Regulation S-K "to the extent provided in the forms to be used for registration under the [Securities] Act." 17 C.F.R. § 229.10.

573. Virgin Galactic filed Registration Statements during the Class Period:

a. On August 8, 2019, Virgin Galactic filed a registration statement on Form S-4, subsequently amended on September 13, September 25, October 3, and October 8, 2019, all of which were signed by Defendants Palihapitiya;

b. On November 18, 2019, Virgin Galactic filed a Registration Statement on Form S-3, which was signed by Defendants Whitesides and Palihapitiya

c. On February 14, 2020, Virgin Galactic filed a Registration Statement on Form S-1/A, which it subsequently amended on February 28, 2020, which was signed by Defendants Whitesides and Palihapitiya

d. On May 1, 2020, Virgin Galactic filed a Registration Statement on Form S-1, which it subsequently amended on May 11, 2020, which was signed by Defendants Whitesides and Palihapitiya;

e. On August 3, 2020, Virgin Galactic filed a Registration Statement on Form S-1, which was signed by Defendants Colglazier and Palihapitiya; and

f. On May 28, 2021, Virgin Galactic filed a Registration Statement on Form S-3, which it subsequently amended on June 17, 2021, which was signed by Defendants Colglazier and Palihapitiya.

574. Forms S-1, S-3, and S-4 mandate disclosure of the information required by Items 303 and 503.

575. Regulation S-K provides that the discussion of known trends, uncertainties, and events should appear in the section of an issuer's registration statement reporting "Management's Discussion and Analysis of Financial Condition and Results of Operations" ("MD&A"). In an 1989 Interpretive Release, the SEC described the purposes of MD&A:

> The Commission has long recognized the need for a narrative explanation of the financial statements, because a numerical presentation and brief accompanying footnotes alone may be insufficient for an investor to judge the quality of earnings and the likelihood that past performance is indicative of future performance. MD&A is intended to give investors an opportunity to look at the registrant through the eyes of management by providing a historical and prospective analysis of the registrant's financial condition and results of operations, with a particular emphasis on the registrant's prospects for the future.

Management's Discussion & Analysis of Fin. Condition & Results of Operations; Certain Inv. Co. Disclosures, Release No. 6835 (May 18, 1989) (the "1989 Interpretive Release") available at 1989 WL 1092885.

576. Issuers must disclose both (a) known trends and uncertainties and (b) any material impact of known trends and uncertainties on their own operations even if the trends are a matter

of public knowledge. 1989 Interpretive Release, 1989 WL 1092885 at *6. *See also Litwin v. Blackstone Grp., L.P.*, 634 F.3d 706, 721 (2d Cir. 2011).

577. Item 303 demands disclosure of known trends unless management determines that a material effect on financial condition or results of operations is not likely to appear. The 1989 Interpretive Release provides the following test to determine if disclosure under Item 303(a) is required:

> Where a trend, demand, commitment, event or uncertainty is known, management must make two assessments:
> (1) Is the known trend, demand, commitment, event or uncertainty likely to come to fruition? If management determines that it is not reasonably likely to occur, no disclosure is required. (2) If management cannot make that determination, it must evaluate objectively the consequences of the known trend, demand, commitment, event or uncertainty, on the assumption that it will come to fruition. Disclosure is then required unless management determines that a material effect on the registrant's financial condition or results is not reasonably likely to occur.
> 1989 Interpretive Release, 1989 WL 1092885, at *6

578. Courts have held that the "reasonably likely" prong "requires more than a remote possibility but something less than more-likely-than-not." *Shah v. Zimmer Biomet Holdings, Inc.*, 348 F. Supp. 3d 821, 837–38 (N.D. Ind. 2018).

579. The Instructions to Item 303 requires that discussion "shall focus specifically on material events and uncertainties known to management that would cause reported financial information not to be necessarily indicative of future operating results or of future financial condition."

580. Both Defendants Branson and Moses have stated that a single catastrophic incident will – not may – mark the end of Virgin Galactic. Thus, a catastrophic incident is the uncertainty most likely to "cause reported financial information not to be necessarily indicative of future operating results", because Virgin Galactic would go bankrupt.

581. Ever since their delivery to Virgin Galactic, Unity and Eve have suffered from persistent safety defects that Virgin Galactic has proven unable or unwilling to fix that make such an accident a significant risk every time Unity flies. Defendants were required to disclose at least the following:

a. Unity and Eve were prototypes not suited to commercial flight;

b. Virgin Galactic never received detailed engineering drawings of Unity and Eve and did not keep track of the changes it made and, as a result, did not know the configuration of Unity and Eve;

c. Eve's wings cracked after every flight and Unity's flight control system buckled in flight;

d. Virgin Galactic's inspections could not detect problems; and

e. The April 2018, July 2018, December 2018, and February 2019 flights all nearly ended in disaster. In particular, it was a "miracle" that Unity did not disintegrate on the February 2019 flight.

582. The risk of a fatal accident resulting from these deficiencies is not "remote"; it nearly came to pass on several flights.

583. Item 503 requires disclosure and discussion of, among other things, "the most significant factors that make the offering risky or speculative."

584. Both Defendants Branson and Moses have stated that a single catastrophic incident will – not may – mark the end of Virgin Galactic. The undisclosed facts relevant to safety alleged herein made such an incident a substantial possibility on every flight, as does the fact that four of five pre-Class Period powered flights nearly ended in disaster.

585. Defendants were required to disclose at least the following:

a. Unity and Eve were prototypes not suited to commercial flight;

b. Virgin Galactic never received detailed engineering drawings of Unity and Eve and did not keep track of the changes it made and, as a result, did not know the configuration of Unity and Eve;

c. Eve's wings cracked after every flight and Unity's flight control system buckled in flight;

d. Virgin Galactic's inspections could not detect problems; and

e. The April 2018, July 2018, December 2018, and February 2019 flights all nearly ended in disaster. In particular, it was a "miracle" that Unity did not disintegrate on the February 2019 flight.

CLASS ACTION ALLEGATIONS

586. Plaintiff brings this action as a class action pursuant to Rules 23(a) and 23(b)(3) of the Federal Rules of Civil Procedure on behalf of a class consisting of all those who purchased the Company's common stock during the Class Period, and who were damaged thereby (the "Class"). Excluded from the Class are (i) Defendants, (ii) officers and directors of Virgin Galactic and Social Capital at all relevant times, and all subsidiaries thereof; (iii) persons or entities who held shares of V10 as of July 9, 2019, and all subsidiaries thereof; (iv) the family members, heirs, assigns, and legal representatives of all persons set out in (i)-(iv); and (v) all entities controlled by the persons set out in (i)-(iv).

587. The members of the Class are so numerous that joinder of all members is impracticable. Throughout the Class Period, the Company's common stock was actively traded on NYSE. While the exact number of Class members is unknown to Plaintiff at this time and can only be ascertained through appropriate discovery, Plaintiff believes that there are hundreds or

thousands of members in the proposed Class. Record owners and other members of the Class may be identified from records maintained by the Company or its transfer agent, and may be notified of the pendency of this action by mail, using the form of notice similar to that customarily used in securities class actions.

588. Plaintiff's claims are typical of the claims of the members of the Class, since all members of the Class are similarly affected by Defendants' wrongful conduct in violation of federal law alleged herein.

589. Plaintiff will fairly and adequately protect the interests of the members of the Class, and has retained counsel competent and experienced in class action and securities litigation.

590. Common questions of law and fact exist as to all members of the Class and predominate over any questions solely affecting individual members of the Class. Among the questions of law and fact common to the Class are:

(a) whether Defendants' acts constituted violations of the federal securities laws;

(b) whether Defendants' statements made to the investing public during the Class Period misrepresented material facts concerning the Company's business, operations, and financial condition;

(c) whether the price of the Company's common stock was artificially inflated during the Class Period; and

(d) to what extent the members of the Class have sustained damages and the proper measure of damages.

591. A class action is superior to all other available methods for the fair and efficient adjudication of this controversy since joinder of all members is impracticable. Furthermore, as the damages suffered by individual Class members may be relatively small, the expense and burden

of individual litigation make it impossible for members of the Class to individually redress the wrongs done to them. Additionally, there will be no difficulty in the management of this action as a class action.

APPLICABILITY OF PRESUMPTION OF RELIANCE:
FRAUD ON THE MARKET DOCTRINE

592. At all relevant times, the market for the Company's common stock was an efficient market for the following reasons, among others:

(a) The Company's common stock met the requirements for listing, and was listed and actively traded on NYSE, a highly efficient, electronic stock market;

(b) As a regulated issuer, the Company filed periodic public reports with the SEC;

(c) The Company regularly communicated with public investors via established market communication mechanisms, including regular disseminations of press releases on the national circuits of major newswire services and other wide-ranging public disclosures, such as communications with the financial press and other similar reporting services; and

(d) The Company was followed by securities analysts employed by major brokerage firms who wrote reports that were distributed to the sales force and certain customers of their respective brokerage firms. Each of these reports was publicly available and entered the public marketplace.

593. As a result of the foregoing, the market for the Company's common stock promptly digested current information concerning the Company from all publicly available sources and reflected such information in the prices of the Company's stock. Under these circumstances, all purchasers of the Company's common stock during the Class Period suffered similar injury through their purchase of the Company's common stock at artificially inflated prices and a presumption of reliance applies.

NO SAFE HARBOR

594. The statutory safe harbor provided for forward-looking statements under certain circumstances does not apply to any of the allegedly false statements alleged herein. Many of the specific statements alleged herein were not identified as "forward-looking statements" when made, and thus are not entitled to protection under the safe harbor provision. Additionally, to the extent that there were any forward-looking statements, there were no meaningful cautionary statements identifying important factors that could cause actual results to differ materially from those in the purportedly forward-looking statements. Alternatively, to the extent that the statutory safe harbor does apply to any forward-looking statements alleged herein, Defendants are liable for those false forward-looking statements because at the time each of those forward-looking statements were made, the particular speaker knew that the particular forward-looking statement was false, and/or the forward-looking statement was authorized and/or approved by an executive officer of the Company who knew that those statements were false when made.

COUNT I
Violation of Section 10(b) of the Exchange Act and SEC Rule 10b-5 Promulgated Thereunder Against All Defendants

595. Plaintiff repeats and realleges each and every allegation contained above as though set forth in full herein.

596. During the Class Period, Defendants disseminated or approved the materially false and misleading statements specified above, which they knew, or were deliberately reckless in not knowing, were misleading. These statements were false and misleading because they contained misrepresentations and failed to disclose material facts necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading.

597. Defendants: (1) employed devices, schemes, and artifices to defraud; (2) made untrue statements of material fact/and or omitted to state material facts necessary to make the

statements made not misleading; and (3) engaged in acts, practices, and a course of business that operated as a fraud and deceit upon the purchasers of the Company's common stock during the Class Period.

598. Plaintiff and the Class have suffered damages in that, in reliance on the integrity of the market, they paid artificially inflated prices for the Company's common stock. Plaintiff and the Class would not have purchased the Company's common stock at the prices they paid – or at all – if they had been aware that the market prices had been artificially and falsely inflated by Defendants' misleading statements.

599. As a direct and proximate result of Defendants' wrongful conduct, Plaintiff and the other members of the Class suffered damages in connection with their purchases of the Company's common stock during the Class Period.

COUNT II
Violation of Section 20(a) of the Exchange Act Against the Individual Defendants

600. Plaintiff repeats and realleges each and every allegation contained above as though set forth in full herein.

601. The Individual Defendants acted as controlling persons of the Company within the meaning of Section 20(a) of the Exchange Act as alleged herein. By virtue of their high-level positions, and their ownership and contractual rights, participation in, and/or awareness of the Company's operations and/or intimate knowledge of the Company's statements filed with the SEC and disseminated to the investing public, the Individual Defendants had the power to influence and control, and did influence and control, directly or indirectly, the decision-making of the Company, including the content and dissemination of the various statements alleged to be false and misleading herein.

602. The Individual Defendants, moreover, were provided with, or had unlimited access to, copies of the Company's reports, press releases, public filings, and other statements alleged to be false and misleading herein. The Individual Defendants were provided with, or had unlimited access to, such documents and statements prior to, and/or shortly after these statements were issued, and therefore had the ability to prevent the issuance of the statements and/or cause the statements to be corrected. Additionally, the Individual Defendants had direct and supervisory involvement in the day-to-day operations of the Company and had the power to control or influence the particular transactions giving rise to the securities violations.

603. The Individual Defendants all had ultimate authority over the Company's statements, including controlling the content of such statements and whether and how to communicate such statements to the public.

604. By reason of such conduct, the Individual Defendants are liable pursuant to Section 20(a) of the Exchange Act.

COUNT III

Violation of Section 20A of the Exchange Act Against Defendants Branson and Palihapitiya

605. Plaintiffs repeat and reallege each and every allegation contained above as if fully set forth herein. Count III is brought pursuant to §20A of the Exchange Act against defendants Branson and Palihapitiya on behalf of Plaintiffs who were damaged by defendants Branson and Palihapitiya's insider trading.

606. As detailed herein, defendants Branson and Palihapitiya were in possession of material, non-public information concerning Virgin Galactic. Branson and Palihapitiya took advantage of their possession of material, non-public information regarding Virgin Galactic to obtain millions of dollars in insider trading profits during the Class Period.

607. Branson and Palihapitiya's sales of Virgin Galactic common stock were made contemporaneously with Plaintiffs' purchases of Virgin Galactic common stock during the Class Period.

608. During the Class Period, Branson sold shares held through V10 and Virgin Investments Limited, entities that he controlled, contemporaneously with Plaintiffs, in the following amounts:

Branson Sale			Contemporaneous purchaser			
Date	Quantity	Total proceeds	Purchaser	Date	Number of Shares Purchased	Price
5/14-22/2020	23,700,000	$358,809,101.76	Kusnier	5/11/2020	1,964	$18.8900
				5/11/2020	414	$19.8900
				5/12/2020	849	$18.8500
				5/20/2020	6000	$15.2
				5/20/2020	370	$15.3
				5/20/2020	400	$15.3250
				5/20/2020	400	$15.3300
				5/20/2020	5	$15.2689
				5/20/2020	1	$15.3250
6/2/2020	12,500,000	$188,327,742	Scheele	6/2/2020	665	$15.8299
4/12-14/2021	5,584,000	$150,325,613.10	Carlough	4/6/2021	2	$29.31
				4/12/2021	1	$27
			Kusnier	4/21/2021	482	$22.0850
				4/21/2021	3000	$22.1250
				4/21/2021	960	$22.1282
				4/21/2021	135	$22.0950
				4/21/2021	900	$22.0100

				4/21/2021	200	$22.0180
				4/21/2021	900	$22.0200
				4/21/2021	2,216	$22.0300
				4/21/2021	8,754	$22.0400
			O'Keefe-Jones	4/5/2021	0.943396	$29.15
				4/9/2021	0.945342	$29.09
				4/16/2021	1.191508	$23.08
				4/23/2021	1.245516	$22.08
8/10-12/2021	10,416,000	$299,867,918.91	O'Keefe-Jones	7/30/2021	0.42268	$31.04
				7/30/2021	46.983198	$31.05
				7/30/2021	0.917891	$29.96
				8/6/2021	0.805507	$34.14
				8/13/2021	1.065099	$25.82
			Ortiz	8/17/2021	0.45513	$25.3450
				8/17/2021	19	$25.3500
				8/17/2021	0.000394	$25.3400
				8/17/2021	20	$25.3400
				8/17/2021	4.909662	$25.4600
				8/11/2021	0.098868	$26.9550
				8/11/2021	36.99744	$26.9570

609. During the Class Period, Defendant Palihapitiya sold the following shares of Virgin Galactic contemporaneously with Plaintiffs:

Date	Quantity	Total Proceeds	Purchaser	Date	Number of Shares Purchased	Price
12/14-15/2020	3,800,000	$97,826,680.32	Scheele	12/7/2020	32	$30.9799
				12/14/2020	1	$26.6100
				12/7/2020	645	$29.6400
				12/7/2020	7	$29.6727
				12/14/2020	1	$27.5
				12/14/2020	5,209	$26.2100
3/2-3/2021	6,200,000	$212,771,951.36	Ortiz	2/26/2021	10	$35.7300
				2/26/2021	5	$35.7300
				2/26/2021	13	$35.7300
			Kusnier	3/1/2021	819	$38.09
				3/1/2021	300	$38.06
				3/1/2021	3118	$38.04
				3/1/2021	500	$38.10
				3/1/2021	527	$38.07
				3/1/2021	6436	$38.12
				3/1/2021	700	$38.08

				3/1/2021	100	$38.11
				3/1/2021	2500	$38.05
				3/4/2021	50	$28.99
				3/4/2021	207	$29.01
				3/4/2021	300	$29.07
				3/4/2021	749	$29.00
				3/4/2021	100	$29.01
				3/4/2021	300	$29.07
				3/4/2021	350	$29.01
				3/4/2021	550	$29.05
				3/4/2021	1670	$29.06
				3/4/2021	400	$29.03
				3/4/2021	9738	$29.07
				3/4/2021	100	$28.99
				3/4/2021	200	$29.08
				3/4/2021	100	$28.98
				3/4/2021	200	$29.02
				3/4/2021	200	$29.00
				3/4/2021	500	$29.04
				3/4/2021	500	$28.97
				3/4/2021	200	$29.01
				3/4/2021	200	$29.02
				3/4/2021	250	$29.03

				3/4/2021	18	$28.98
				3/4/2021	200	$29.03
				3/4/2021	200	$29.02
				3/4/2021	219	$29.03
				3/4/2021	99	$29.04
				3/4/2021	400	$29.05
			Carlough	3/2/2021	1	$35.20
				3/4/2021	17	$29.21
			O'Keefe-	2/26/2021	0.726746	$37.84
			Jones	3/5/2021	1.011773	$27.18

610. Plaintiffs who purchased shares of Virgin Galactic common stock contemporaneously with sales by Branson and Palihapitiya suffered damages because: (1) in reliance on the integrity of the market, they paid artificially inflated prices as a result of the violations of §§10(b) and 20(a) of the Exchange Act as alleged herein; and (2) they would not have purchased the securities at the prices it paid, or at all, if it had been aware that the market prices had been artificially inflated by the false and misleading statements and concealment alleged herein.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs pray for relief and judgment, as follows:

A. Determining that this action is a proper class action, certifying Plaintiffs as Class representatives under Rule 23 of the Federal Rules of Civil Procedure and their counsel as Counsel for the Class;

B. Awarding compensatory damages in favor of Plaintiffs and the other Class members against all Defendants, jointly and severally, for all damages sustained as a result of Defendants' wrongdoing, in an amount to be proven at trial, including interest thereon;

C. Awarding Plaintiffs and the Class their reasonable costs and expenses incurred in this action, including counsel fees and expert fees; and

D. Such other and further relief as the Court may deem just and proper.

JURY DEMAND

Plaintiffs hereby demand a trial by jury.

Dated: December 7, 2021

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on December 7, 2021, a true and correct copy of the foregoing document was served by CM/ECF to the parties registered to the Court's CM/ECF system.

/s/ Jonathan Horne